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Mr Steve Gunderson
Rocky Flats Cleanup Agreement Project Coordinator
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80245-1530

Dear Mr Gunderson:

The purpose of this letter is to transmit the Major Modification to the Building 776/777 Closure Project Decommissioning Operations Plan (DOP) for demolition of the facility for your approval. Enclosed with this letter is Appendix I to the DOP, which includes information on demolition methods, techniques, controls and performance specifications that will ensure safety of workers, public health and the environment The formal public comment period was completed on the June 11, 2003 Comments from Colorado Department of Public Health and Environment, the local communities and public have been addressed by meeting with individuals to discuss details and/or making changes in this document

We look forward to continuing information sharing as more planning for demolition is accomplished Your support to accomplish the closure and removal of Building 776/777 in a safe and timely manner is greatly appreciated Please feel free to direct any questions to John Schneider at (303) 966-5924 or Gary Schuetz at (303) 966-3016.

Sincerely,

for

Joseph A. Legare
Assistant Manager
for Environment and Stewardship

Reviewed for Addressee
Corres Control RFP

7/2/03 JL
Date By

Ref Ltr #

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Enclosure

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APPENDIX I
Demolition Plan

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1.0 Introduction

The Rocky Flats Cleanup Agreement (RFCA) definition of decommissioning includes facility component removal, size reduction, decontamination, and demolition This appendix to the Building 776/777 Decommissioning Operations Plan (DOP) includes details for building demolition, which were not available at the time the DOP was prepared This demolition plan is being appended to the DOP through a major modification as required in the original DOP (Revision 0) which was approved on November 3, 1999 The responsiveness summary resulting from the formal public comment on this appendix is contained in Appendix J A minor modification to the original DOP is being prepared concurrently with this Appendix to ensure consistency within the document

This demolition plan describes the selected demolition method and characterization surveys that will be conducted, and describes demolition techniques and controls The goal of Building 776/777 decommissioning is to safely demolish and remove building components and structures to at least three feet below final grade and package and transport the debris to an approved disposal facility The characterization and remediation of the soil and groundwater beneath the facility is not within the scope of this DOP Building 776/777 Project Management will coordinate with Environmental Restoration (ER) when making decisions on leaving below-grade structures or components in place.

1.1 Demolition Objectives and ALARA

The absolute goal of the 776/777 demolition project is to maintain releases to the environment and doses to the workers as low as reasonably achievable (ALARA) Before demolition, selected contaminated areas will be removed, and others will be hydrolased During demolition, the ALARA goals will be accomplished by the usage of a combination of reasonable decontamination techniques including component removal, fixation and/or encapsulation of remaining contamination, and demolition techniques designed to minimize releases of any residual contamination. Basic techniques for these processes are described under Section 5 0 The overall demolition objectives for Building 776/777 are to·

- Protect the environment;
- Protect the public to the extent practical by maintaining emissions as low as reasonably achievable,
- Protect worker health and safety;
- Package the majority of the building as waste for disposal at off-site facilities (e g , Nevada Test Site, Hanford, Envirocare),
- Remove building components to at least three feet below final grade, and
- Accommodate future land-use as a national wildlife refuge.

1.2 Overall Process

The decommissioning process for Building 776/777 will involve decontamination, removals, and application of controls inside the building before demolition and application of controls outside the building during demolition The current Building 776/777 DOP (Revision 0) covers the decontamination, removals, and application of controls inside the building before demolition. This Appendix to the DOP specifically addresses the demolition. Since the proposed demolition method relies on the preparation of the facility before demolition as a control, this appendix addresses the overall methodology While the building is being prepared for demolition, evaluations will be made to ensure that the goals and objectives stated in this appendix to the DOP are maintained These evaluations will be based on what is removed from the building before demolition, what will remain in the building during demolition, and the nature and extent of contamination of the building before demolition

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Facility demolition will involve the use of large mechanical equipment, which may include excavators equipped with a hydraulic hoe-ram and grapple, hoists and cranes, and front-end loaders These will be used to size reduce, segregate, and load the concrete, steel and other facility materials into waste containers, with enhanced controls for radiological protection The following is a simplified outline of the proposed Building 776/777 decommissioning process

1 Facility decontamination and component removal (risk reduction) are initiated with concurrent in-process characterization (addressed in Sections 1 2, 3 0, and 4 0)
    - Decisions are made throughout the facility to decontaminate, fix, or remove contamination and/or contaminated components
2 Resource Conservation and Recovery Act (RCRA) units are closed
3 Chemicals and hazardous substances are removed
4 Beryllium regulated and controlled areas are closed
5 Polychlorinated biphenyls (PCB) hazards and equipment are removed
6 Asbestos is abated
7 The final characterization is conducted (addressed in Section 4 2)
8 Areas with contamination or with potential contamination are fixed and encapsulated. (addressed in Section 3 0 and 4.2)
9 The *Final Characterization Report* is prepared, reviewed, and concurred to by the Lead Regulatory Agency (LRA) (addressed in Section 4.2)
10 The Contractor Demolition Plan and work packages for demolition are prepared and reviewed. (addressed in Section 5 1)
11 Demolition is completed (addressed in Section 5 2)
12 Final project closeout reports and documentation are prepared, reviewed and approved by the LRA (addressed in Section 4 18 4 of the original DOP (Revision 0))
13 Remediation activities (soil and groundwater) are initiated, as necessary (addressed in Section 7 0 and other RFCA decision documents)

Although this process is laid out in a sequential manner, many of the activities overlap For instance, characterization may be conducted in rooms adjacent to decontamination activities. All of 13 steps/processes described will have the opportunity for information exchanges and participation with DOE, Kaiser-Hill and its subcontractors, the regulatory agencies, and the public

1.3 Public Involvement

Approval of this major modification to the DOP is the first step in the public involvement process for the Building 776/777 Project. It is anticipated that there will be continued public interest in the progress of the decommissioning activity. There will be numerous opportunities for standard information exchanges potentially including the following

- ER/D&D Monthly Status Meeting – Status of the facility preparation for demolition, characterization and demolition activity
- Rocky Flats Coalition of Local Governments Monthly Meeting – Presentations and information exchanges as requested
- Rocky Flats Citizens Advisory Board Monthly Meetings – Presentations and information exchanges as requested

At a minimum, it is anticipated that presentations and information exchanges will occur before the finalization of characterization plan, finalization of the characterization report, and demolition initiation

2.0 Screening of Alternatives

This evaluation applies RFCA's criteria in evaluating alternatives for demolishing Building 776/777 Four alternatives for the demolition of Building 776/777 were evaluated, which are

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Alternative 1	Complete decontamination to unrestricted release levels followed by demolition
Alternative 2	Demolition inside a full containment structure
Alternative 3	Mechanical/selective demolition with local containment
Alternative 4	Decontamination followed by demolition

In accordance with the RFCA Implementation Guidance Document (IGD), the selected alternatives were evaluated for effectiveness, implementability, and cost If the alternatives pass the initial screening based on effectiveness, implementability, and cost, then alternatives will be compared on a qualitative basis using descriptors such as high, medium, or low

2.1 Alternative 1: Complete decontamination to free releasable standards followed by demolition

This alternative assumes that decontamination efforts would result in a facility that meets the unrestricted release criteria In this alternative, decontamination technologies (hydrolasing, scabbling, scarification, etc) that remove the outermost layers of concrete, steel, and other construction materials would be used to result in a surface that meets unrestricted release levels Portions of the building that could not be decontaminated to free release criteria would be removed, such as the original roof, the second floor, and portions of the first floor Following decontamination, radiological surveys would be performed to verify that the remaining materials would meet unrestricted release criteria The released structure could then be demolished, and the concrete would be managed per the RFCA Standard Operating Protocol (RSOP) for Recycling Concrete The released concrete portion of the building would be reused as fill on-site as demolition debris The remaining building debris would be disposed of at an off-site facility.

2.1.1 Effectiveness

Effectiveness considers whether the alternative provides protection of public health and the environment. Bringing the facility to unrestricted release levels before demolition reduces the overall potential for the release of contamination to the environment. This alternative has no short-term adverse impacts to public health and the environment, and complies with the applicable or relevant and appropriate requirements (ARARs) However, this alternative has significant potential short-term adverse impacts to the workers implementing the action, due to the extended schedule requiring additional exposure to radiological and industrial hazards and the potential for partial building collapse Long-term effectiveness is not relevant because the demolition activity is short-term, and once the building has been removed, the risk has been removed.

2.1.2 Implementability

Implementability addresses the technical and administrative feasibility of implementing an alternative and the availability of the services and materials required

Technical Feasibility

This alternative carries the potential of partial building collapse due to the possibility that structural supports will be required as decontamination efforts erode the building's structural integrity In addition, decontamination to the unrestricted release levels is not feasible, based on the following information

Building 776/777's cinder block construction accounts for approximately 40% of the building exterior walls Subject matter experts believe that plutonium-laden smoke penetrated these blocks during the 1969 fire, rendering complete decontamination technically unattainable The porous nature of this material would require scabbling or hydrolasing to remove the contaminants Work to-date indicates that the smoke did contaminate conduit and pipe penetrations in the block walls Decontamination activities would render the walls structurally

unstable with a high risk of collapse Similarly, plutonium impregnated smoke is expected to have penetrated into steel joints, footer joints, sheet metal overlaps on the original roof, and virtually all other cracks or crevices in the areas that held smoke or water in May 1969

In 1969, fire recovery efforts included encasing a portion of the building's structural steel beam columns in envelopes of concrete This concrete was intended to provide additional structural support for steel weakened from the heat of the fire Joints and base plates for metal columns throughout the building expanded with heat and may have allowed contamination from smoke and water under the plates/joints When the metal beams cooled, the contamination was trapped. Removing the steel columns would render the building structurally unsound.

Cracks and penetrations within the walls of the building and ceiling were contaminated with firewater and smoke For approximately two years after the 1969 fire, decontamination operations were conducted within the building with a cleanup target of 5,000 dpm/100 cm^2 removable and the fixed contamination was not given an upper limit This exhaustive effort removed, at least in some areas, more than 99% of the contamination from the fire Interviews with management personnel involved in the effort indicated that contamination removal activities ceased only when additional work did not result in additional decontamination After two years, many contaminated areas exceeded this limit and were fixed with epoxy and paint

Some areas within the Building 776/777 complex were filled with concrete after the 1969 fire in an effort to fix the contamination Decontamination within the concrete cannot be successfully completed given that the contamination is now trapped inside concrete layers

The post-fire decontamination effort was conducted to the existing radiological exposure and safety standards current at the time Rocky Flats Environmental Technology Site (RFETS or Site) records indicate that decontamination personnel experienced radiological uptakes and some still carry plutonium body burdens dating from these activities Additional decontamination efforts would be conducted to more modern exposure and safety standards, but a large-scale decontamination effort carries risk of exposures that are not necessary if safer demolition alternatives with a lower worker exposure risk are available.

No unique permits would be required for this alternative This alternative is protective of the environment as all decontamination and demolition activities would be conducted under full containment, reducing the likelihood of a release to the environment.

Availability of Services and Materials

Equipment for decontamination, surveys, and structural support would be required for this alternative. It is uncertain whether technology and/or equipment exist to decontaminate cinder block walls that cannot be removed before demolition Personnel and services, monitoring, and outside laboratory testing may be required in the short- and long-term to address any increased monitoring that may be required. ER would address post-removal site control, as necessary

Administrative Feasibility

This alternative is administratively feasible because there is no need for coordination with other offices or agencies for permits, easements for rights-of way, or zoning variances There may be an impact to adjoining property if contamination were to migrate offsite Under this alternative, existing Site management and access controls would be maintained until the demolition was complete This alternative would be acceptable to the State and/or local communities

2.1.3 Costs

Evaluation of costs should consider the capital costs to engineer, procure, and construct the required equipment and facilities, and the operating and maintenance costs associated with the alternative In accordance with the IGD, cost estimates can be "order-of-magnitude" with sufficient accuracy to allow comparison and ranking of the alternatives

Capital Cost

Alternative 1 is estimated to cost approximately $41,500,000

Operation and Maintenance

There are no operations and maintenance costs associated with this alternative

Present Worth Cost

This analysis was not completed, it is assumed that the alternative would be implemented fairly soon, therefore, today's dollars are a fair estimate

2.2 Alternative 2: Demolition inside a full containment structure

Building 776/777 and a portion of the Building 779 pad would be enclosed inside a steel structure, either fabric covered or hard-sided. The structure's approximate dimensions would be 400 feet wide by 800 feet long by 100 feet tall The containment size is designed to allow conventional demolition equipment to operate without significant restrictions. The structure would be designed to withstand winds between 90 miles per hour and 125 miles per hour, and be effectively sealed and negatively ventilated. Installation would require building a rail system to support assembly of the frame in sections over the Building 779 pad These sections would then be rolled into position over Building 776/777 to avoid heavy lifts over the building during ongoing decommissioning of the interior

Operating equipment within the structure would be powered by propane, requiring that the ventilation system be sized to support sufficient air changes to prevent accumulations of unacceptable levels of airborne exhaust.

Activities inside the containment would include localized decontamination coupled with demolition Packages of contaminated building debris would exit the containment at the 779 pad.

2.2.1 Effectiveness

Effectiveness considers whether the alternative provides protection of public health and the environment This alternative has no short-term adverse impacts to public health and the environment, and complies with the ARARs However, this alternative has significant potential short-term adverse impacts to the workers implementing the action because this alternative involves assembly and disassembly of a 400 feet wide by 800 feet long by 100 feet tall containment The amount and type of construction activities involved in erecting and disassembly of a free span structure of this size is significant. Any project of this magnitude involves an added risk to the workers from an occupational accident. Construction related accidents during erection and disassembly could result in significant or fatal accidents affecting a number of personnel. The schedule impacts associated with this approach proportionately increases the risk due to the longer duration and potential for additional injuries Long-term effectiveness is not relevant because the demolition activity is short-term and once the building has been removed, the risk has been removed

2.2.2 Implementability

Implementability addresses the technical and administrative feasibility of implementing an alternative and the availability of the services and materials required

Technical Feasibility

This alternative involves assembly and disassembly of a 400 feet wide by 800 feet long by 100 feet tall containment The amount and type of construction activities involved in the erection and disassembly of a free span structure of this size is significant In addition to its size, the structure would have to be constructed to withstand significant winds and snow loads A structure of this size has never been constructed, and may not be feasible

No unique permits would be required for this alternative This alternative would be adaptable to environmental conditions because all work would be conducted within a tent designed to withstand the environment

Availability of Services and Materials

Equipment for decontamination, surveys, structural support, and tent construction would be required for this alternative A structure this size, designed for containment, has never been constructed over a facility, the technology is unproven Personnel and services, monitoring, and outside laboratory testing may be required in the short- and long-term to address any increased monitoring that may be required. ER would address post-removal site control, as necessary

Administrative Feasibility

This alternative is administratively feasible because there is no need for coordination with other offices or agencies for permits, easements for rights-of way, or zoning variances There may be an impact to adjoining property if contamination were to migrate offsite Under this alternative, existing Site management and access controls would be maintained until the demolition was complete This alternative would be acceptable to the State and/or local communities

2.2.3 Costs

Evaluation of costs should consider the capital costs to engineer, procure, and construct the required equipment and facilities, and the operating and maintenance costs associated with the alternative In accordance with the IGD, cost estimates can be "order-of-magnitude" with sufficient accuracy to allow comparison and ranking of the alternatives

Capital Cost

Alternative 2 is estimated to cost approximately $48,600,000

Operation and Maintenance

There are no operations and maintenance costs associated with this alternative

Present Worth Cost

This analysis was not completed, it is assumed that the alternative would be implemented fairly soon; therefore, today's dollars are a fair estimate

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2.3 Alternative 3: Mechanical/selective demolition with local containment

The selective demolition alternative would require a piece-by-piece decontamination and demolition of the building under either the radiological controls that currently exist within the building, or alternatively under new controls constructed to maintain comparable integrity Each area could require localized containment to maintain negative ventilation. Selective demolition requires a combination of techniques, to include at a minimum

- All exterior walls would be removed using a specially constructed rolling scaffold designed to maintain negative ventilation This would involve moving the rolling scaffold and establishing seals to support negative ventilation at each location. All the exterior walls would need to be replaced with a fire rated panel, so that building integrity would be maintained during subsequent demolition of the interior The moving scaffold would need to be designed to support removal of 32-foot block walls that may be subject to collapse during removal
- Concurrently, the interior walls could be removed with the building intact and airflow controlled by building ventilation.
- Temporary ventilation would need to be installed to maintain negative ventilation while the remaining air exhaust ducts and plenums are removed
- The original roof would be removed from the second floor using scaffolding
- After removal of the original roof, the second floor could be removed from the first floor using scaffolding
- Next, the building floor slab would be removed with the building still intact and ventilated by the existing air plenums
- Once the interior of the building has been gutted and only the skeleton of the building and roof remain, then the replacement exterior panels could be removed
- The building shell and steel superstructure would be removed in small sections inside of a movable partial containment with temporary ventilation.
- The building footings, pipe, and concrete would be removed to 3 feet below grade inside the movable partial containment.

Structural analysis would be required for all of these steps to assure that the remaining structure is not subject to collapse, and that the building could maintain a sufficiently negative air pressure. It is probable that additional structural elements (such as buttresses to hold up the building frame) would be required to maintain building integrity while crews concurrently dismantle the building Removal of the ceiling and the second floor would require numerous lift plans and careful engineering to ensure worker safety.

2.3.1 Effectiveness

Effectiveness considers whether the alternative provides protection of public health and the environment. This alternative has no short-term adverse impacts to public health and the environment, and complies with the ARARs However, this alternative has significant potential short-term adverse impacts to the workers implementing the action because this alternative is labor intensive with high worker risk due to elevated work activities, more "hands on" activities versus use of heavy equipment, and increased potential for dose to workers Assembling and dismantling rolling scaffold and building additional containment's increases worker industrial and radiological risk Removal of the interior structural elements could degrade the structural integrity of portions of the remaining facility possibly causing unplanned collapses

2.3.2 Implementability

Implementability addresses the technical and administrative feasibility of implementing an alternative and the availability of the services and materials required

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Technical Feasibility

The piece-by-piece disassembly of a facility this size under localized containment has not been demonstrated Structural evaluations would be required throughout this alternative, however, accurate evaluations are probably not possible, due to the history of the facility and because many of the structural elements cannot be accessed without destruction

No unique permits would be required for this alternative This alternative would be adaptable to environmental conditions because all work would be conducted within containment designed to withstand the environment

Availability of Services and Materials

Equipment for decontamination, surveys, structural support, and localized tent construction would be required for this alternative Personnel and services, monitoring, and outside laboratory testing may be required to address any increased monitoring that may be required. ER would address post-removal site control, as necessary

Administrative Feasibility

This alternative is administratively feasible because there is no need for coordination with other offices or agencies for permits, easements for rights-of way, or zoning variances There may be an impact to adjoining property if contamination were to migrate offsite Under this alternative, existing Site management and access controls would be maintained until the demolition was complete This alternative would be acceptable to the State and/or local communities

2.3.3 Costs

Evaluation of costs should consider the capital costs to engineer, procure, and construct the required equipment and facilities, and the operating and maintenance costs associated with the alternative In accordance with the IGD, cost estimates can be "order-of-magnitude" with sufficient accuracy to allow comparison and ranking of the alternatives

Capital Cost

Alternative 3 is estimated to cost approximately $45,700,000

Operation and Maintenance

There are no operations and maintenance costs associated with this alternative.

Present Worth Cost

This analysis was not completed, it is assumed that the alternative would be implemented fairly soon; therefore, today's dollars are a fair estimate.

2.4 Alternative 4: Decontamination followed by demolition

Alternative 4 would involve decontamination, removals, and application of controls inside the building before demolition and application of controls outside the building during demolition. While the building is being prepared for demolition, evaluations will be made to ensure that the remaining contamination can be controlled during the demolition These evaluations will be based on what is removed from the building before demolition, what will remain in the building during demolition, and the nature and extent of contamination of the building before demolition

Contamination would be identified through radiological surveys of the accessible areas of the building surfaces using a sodium iodide or similar detector Hard to characterize areas would be investigated using a variety of measurement and sampling techniques Identified areas will be decontaminated, fixed, or engineering controls applied so that subsequent demolition has minimal risk of radiological releases Final scan results would be compiled in a project-specific characterization report that will be submitted to Colorado Department of Public Health and Environment (CDPHE)

Once contamination has been removed or fixed, facility demolition will involve the use of large mechanical equipment, which may include excavators equipped with a hydraulic hoe-ram and grapple, hoists and cranes, and front-end loaders These will be used to size reduce, segregate, and load the concrete, steel and other facility materials into waste containers, with enhanced controls for radiological protection. Radiological monitoring to demonstrate protection of workers, co-located workers, and the public would be utilized. The concrete slab would be removed and loaded in waste containers using an excavator after the upper portion of the structure has been dispositioned. Engineering and administrative controls would be used during demolition of the building reduce the spread of contamination. These controls include but are not limited to

- Dust suppression alternatives, such as water spray, to ensure the demolition area is wet,
- If contamination is present in an inaccessible area before removal, additional controls may be used such as encapsulation or selective removal

In addition, all building waste would be shipped to off-site facilities, none would be used on-site as backfill

2.4.1 Effectiveness

Effectiveness considers whether the alternative provides protection of public health and the environment. Evaluating the radiological risk to the public from implementing this alternative establishes that dose levels to the public are well within established limits and no gain is realized to the public health from the other alternatives

2.4.2 Implementability

Implementability addresses the technical and administrative feasibility of implementing an alternative and the availability of the services and materials required.

Technical Feasibility

The techniques required for this alternative are standard and proven techniques for demolition. The demolition approach is consistent with commercial nuclear standards and to a lesser extent some specific government practices This technique has been proven to be safe and effective

No unique permits would be required for this alternative This alternative would require specific controls to address changes in environmental conditions

Availability of Services and Materials

Equipment for decontamination and surveys would be required for this alternative Personnel and services, monitoring, and outside laboratory testing may be required in the short- and long-term to address any increased monitoring that may be required ER would address post-removal site control, as necessary

Administrative Feasibility

This alternative is administratively feasible because there is no need for coordination with other offices or agencies for permits, easements for rights-of way, or zoning variances There may be an impact to adjoining property if contamination were to migrate offsite Under this alternative, existing Site management and access controls would be maintained until the demolition was complete This alternative would be acceptable to the State and/or local communities; however, it is anticipated that supplementary consultation would be required

2.4.3 Costs

Evaluation of costs should consider the capital costs to engineer, procure, and construct the required equipment and facilities, and the operating and maintenance costs associated with the alternative In accordance with the IGD, cost estimates can be "order-of-magnitude" with sufficient accuracy to allow comparison and ranking of the alternatives

Capital Cost

Alternative 4 is estimated to cost approximately $15,500,000

Operation and Maintenance

There are no operations and maintenance costs associated with this alternative

Present Worth Cost

This analysis was not completed, it is assumed that the alternative would also be implemented fairly soon; therefore, today's dollars are a fair estimate

2.5 Comparative Analysis of Alternatives

As indicated by the IGD, only alternatives passing the initial screening based on effectiveness, implementability, and cost are compared against each other Only one alternative passed the initial screen, Alternative 4 Alternatives 1 through 3 are not technically feasible, primarily due to the history of the building

Table I-1 presents a comparative analysis of alternatives made on a semiquantitative ranking system based on effectiveness, implementability, and cost. Each category has been scored low (L), medium (M), or high (H) A low score means that the criteria cannot be achieved, a medium score means that the criteria can be achieved most of the time, and a high score means that the criteria will always be achieved or is not required under the alternative.

Decontamination followed by demolition provides the optimum benefits for on-site workers while providing protection to both the environment and off-site receptors This alternative is the only alternative that is consistent with all of the goals established in the RFCA to

- Reduce the residual radiation and to do so by an approach that minimizes the amount of waste generated,
- Minimize the risk potentially associated with radiological exposure, and
- Balance radiological exposures against economic and social factors producing a positive net benefit to the worker, public, and the environment

Alternative 4 has been selected as the alternative that provides the optimum benefits for on-site workers, while still providing regulatory compliant protection off-site for human health and the environment.

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Table I-1
Comparative Analysis of Alternatives

Screening Criteria	Alternative 1 Complete decontamination to unrestricted release levels followed by demolition	Alternative 2 Demolition inside a full containment structure	Alternative 3 Mechanical/selective demolition with local containment	Alternative 4 Decontamination followed by demolition
Effectiveness[1]				
Protectiveness				
Public health	H	H	H	H
Workers	L	L	L	H
Environment	H	H	H	H
Attains ARARs	H	H	H	H
Implementability				
Technical Feasibility				
Construction and operation	M	L	L	H
Demonstrated performance	L	L	L	H
Adaptable to environmental conditions	M	L	M	M
Need for permits	H	H	H	H
Availability of Services and Materials				
Equipment	M	L	L	H
Personnel and services	M	L	M	H
Outside laboratory testing	H	H	H	H
Offsite treatment and disposal	H	H	H	H
Post-removal site control	H	H	H	H

[1] Each category has been scored low (L), medium (M), or high (H) A low score means that the criteria cannot be achieved, a medium score means that the criteria can be achieved most of the time, and a high score means that the criteria will always be achieved or is not required under the alternative

Screening Criteria	Alternative 1 Complete decontamination to unrestricted release levels followed by demolition	Alternative 2 Demolition inside a full containment structure	Alternative 3 Mechanical/selective demolition with local containment	Alternative 4 Decontamination followed by demolition
Implementability				
Administrative Feasibility				
Permits required	H	H	H	H
Easements for rights-of-way required	H	H	H	H
Impact on adjoining property	H	H	H	H
Ability to impose institutional controls	H	H	H	H
Acceptable to State and local communities	H	H	H	M
Costs[2]				
Capital cost	L	L	L	H
Operation and maintenance	H	H	H	H
Present worth cost	H	H	H	H

[2] Each category has been scored low (L), medium (M), or high (H) A low score means that the criteria cannot be achieved, a medium score means that the criteria can be achieved most of the time, and a high score means that the criteria will always be achieved or is not required under the alternative

3.0 Pre-Demolition Activities and Methods

Building 776/777 is different from other plutonium buildings at the Site for several reasons The building has structural steel framing with perimeter transite panels and cinder block walls, instead of only poured-in-place concrete The foundation has former basements and equipment pits up to 25 feet deep, filled with solid concrete Finally, the 1969 fire caused extensive damage that resulted in contamination throughout the building from the fire, smoke, and water All of these factors make decontamination to the unrestricted release levels impractical Therefore, a general approach has been developed and will be refined to include decontamination followed by demolishing the structure and packaging and shipping the debris as low level waste

This decommissioning process will involve decontamination, removals, and application of controls inside the building before demolition and application of controls outside the building during demolition The current Building 776/777 DOP covers the decontamination, removals, and application of controls inside the building prior to demolition, however, the general process will be documented within this appendix to the DOP for completeness

Before demolition, RCRA units will be closed, asbestos will be abated, and chemicals and hazardous constituents will be removed. Transuranic (TRU) waste, gloveboxes, and contaminated process waste piping will be removed Non-process piping, ducting, and other equipment left within the facility at the time of demolition will be assessed and the information documented in the project specific final characterization report Examples include fire suppression piping, plant steam and water lines, and nitrogen and plant air lines

To date, preliminary characterization of the building has been conducted for work planning purposes As work planning continues, additional in-process characterization will be performed, and work packages will be prepared to address the activities that must be conducted before the demolition. The purpose of these characterization efforts is to demonstrate the extent and magnitude of the existing radiological contamination, before demolition of the building Alternatively, due to the technical limitations of decontaminating or removing some of the facility's inaccessible locations, additional radiological controls will be applied, as appropriate, to limit the release of contamination from these areas during demolition The decision for each of these particular actions will be based on the following

- Levels and types of contamination,
- Extent of the contaminated areas;
- Material the contamination is on (e g , cinderblock vs concrete),
- Ability to control contamination during demolition and waste handling,
- Potential for releases to the environment,
- Structural consequences, and
- Industrial safety risk, worker exposure, and cost associated with removing, decontaminating, and/or fixing the contamination.

A variety of decontamination methods have been evaluated, including hydrolasing, pressure washing, scabbling, and concrete shaving The method or methods used will be selected based on the above criteria

Table I-2 documents the potential pre-demolition methodology and how the decisions may be made to implement those actions and controls This table is not all-inclusive The final decision-making will be made at the project level and documented in the work packages CDPHE will have the opportunity to participate in work package review per the consultative process outlined in RFCA and in Section 11 of the DOP

In balancing the worker safety, environmental and human health protection, and cost/schedule, it is currently conceived that removal and the use of fixatives and encapsulants will generally be conducted as follows, however, specific decisions will be made on a case-by-case basis

- Floors with high to medium contamination will be decontaminated
- Floor with low contamination will not be decontaminated and fixatives and encapsulants will be applied
- Ceilings with high contamination will be decontaminated or removed
- Ceilings with medium to low contamination will not be decontaminated and fixatives and encapsulants will be applied
- The upper half of walls with high contamination will be decontaminated or removed
- The upper half of walls with medium to low contamination will be encapsulated
- The lower half of walls with high to medium contamination will be decontaminated or encapsulated
- The lower half of walls with low contamination will be encapsulated

The list above is as an example of the general decision-making given the current characterization information The initial air modeling indicates the project will be protective of the environment and public health Consequently, the decision-making will be primarily based on the risks to the workers, and can generally be simplified into the following single rule

If

Risks (industrial and radiological) to the workers are greater than the benefit in source term reduction

And

Controls can be applied to reduce emissions,

Then

The work (decontamination and/or removal) will not be conducted

And

Controls will be applied before and/or during demolition

Table I-2
Pre-Demolition Methodology

	Pre-demolition Method	Potential Decision Criteria	
		If	Then
Walls	Decontaminate	Decontamination could affect the structural integrity of the wall	Decontamination is not an alternative
		Contamination is removable	Consider decontamination if it reduces worker exposure during subsequent activities
		Decontamination will be effective at removing the majority of the surface contamination with one pass	Evaluate the worker risk and cost associated with conducting the decontamination
	Remove – cut out	The wall is structural or potentially structural	Removal is not an alternative
	Apply fixative and encapsulants	Removal and decontamination are not selected	Survey the area in accordance with the approved survey plan and apply fixatives and encapsulants, as appropriate
	Delineate the area with paint	The contamination level requires additional controls[3] during the demolition activity	Mark the area so it can be readily identified during demolition
Floors	Decontaminate	Contamination is removable	Consider decontamination if it reduces worker exposure during subsequent activities
		Decontamination will be effective at removing the majority of the surface contamination with one pass	Evaluate the worker risk and cost associated with conducting the decontamination
	Remove – cut out	The slab thickness is conducive to cutting	Evaluate the worker risk and cost associated with conducting the slab removal
	Apply fixative and encapsulants	Removal and decontamination are not selected	Survey the area in accordance with the approved survey plan and apply fixatives and encapsulants, as appropriate
	Delineate the area with paint	The contamination level requires additional controls[1] during the demolition activity	Mark the area so it can be readily identified during demolition

[3] Beyond the controls that will be applied through the demolition process For example, additional controls could be reduced wind speed, additional dust control (i.e , amended water), and/or immediate containerization

	Potential Actions and Controls	Potential Decision Criteria	
		If	Then
Ceiling	Decontaminate	Contamination is removable	Consider decontamination if it reduces worker exposure during subsequent activities
		Decontamination will be effective at removing the majority of the surface contamination with one pass	Evaluate the worker risk and cost associated with conducting the decontamination
	Remove – cut out	Contamination is localized and accessible	Evaluate the worker risk and cost associated with conducting the ceiling removal
	Apply fixative and encapsulants	Removal and decontamination are not selected	Survey the area in accordance with the approved survey plan and apply fixatives and encapsulants, as appropriate
	Delineate the area with paint	The contamination level requires additional controls[1] during the demolition activity	Mark the area so it can be readily identified during demolition
Columns/ Joints	Apply fixative and encapsulants	Removal and decontamination are not a viable alternative	Survey the area in accordance with the approved survey plan and apply fixatives and encapsulants, as appropriate
	Decontaminate	Contamination is removable	Consider decontamination if it reduces worker exposure during subsequent activities
	Delineate the area with paint	The contamination level requires additional controls[1] during the demolition activity	Mark the area so it can be readily identified during demolition

[1] Beyond the controls that will be applied through the demolition process For example, additional controls could be reduced wind speed, additional dust control (i e , amended water) and/or immediate containerization.

4.0 Pre-Demolition Evaluation

While the building is being prepared for demolition, evaluations will be made to ensure that the goals and objectives stated in this appendix to the DOP are maintained These evaluations will be based on what is removed from the building before demolition, what will remain in the building during demolition, and the nature and extent of contamination of the building before demolition This section outlines that evaluation process, the regulatory basis for evaluation, and the characterization approach

4 1 Regulatory Framework and Assessment

The applicable regulatory requirements from the *National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities* are

- 40 CFR § 61 92, which states that emissions of radionuclides to the ambient air from US Department of Energy (DOE) facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 millirem per year (mrem/yr), and
- 40 CFR § 61 93(b)(4), which states radionuclide emission measurements shall be made at all release points which have a potential to discharge radionuclides into the air which could cause an effective dose equivalent in excess of 1% of the 10 mrem standard (0 1 mrem) to any member of the public

The relevant and appropriate regulatory requirements from the *Colorado Radiation Control Division of Laboratory & Radiation Services* are

- RH 4 5 2, which states that to the extent practical, procedures and engineering controls based on sound radiation protection principles should be used to achieve doses to members of the public that are as low as reasonably achievable, and
- RH 4 5 4, which states that a constraint on air emissions shall be established such that the individual member of the public likely to receive the highest dose will not be expected to receive a total effective dose equivalent in excess of 0 1 millisievert per year (equivalent to 10 mrem/yr) from these emissions

Since Building 776/777 is part of a much larger closure project, a project-specific emissions objective of 0 1 mrem project contribution has been established for the Building 776/777 demolition The emissions objective is based on the principle of maintaining the project emissions as low as reasonably achievable, and is the project's commitment to a 99% reduction of the allowable emissions to the closest public receptor The emissions objective has several components

- This is the regulatory criterion used to determine when radiological air monitoring is required;
- The actual measured average contamination remaining after decontamination is expected to be well below the level required to meet the 0 1 mrem emissions objective,
- The air modeling assumptions are very conservative, and
- Additional demolition controls will be used that are not credited in the air model (e g , dust suppression misting, use of fixatives, and controls on waste piles and container loading)

Compliance with this emissions objective will ensure the 0 1 mrem annual project contribution to the public is not exceeded.

After the targeted decontamination and removals are complete, final characterization activities will be conducted to collect information to complete the following

- Model emissions that could result from the demolition activity to determine potential impacts to the immediate and co-located workers and the public,
- Finalize the work area controls required during the demolition, and

- Verify that the waste acceptance criteria for the demolition debris are met

The success of the decontamination and removal activities will be determined by comparing the goals and objectives in this DOP appendix with the results of the air modeling After completion of decontamination and/or removal activities, the remaining contamination will be measured and the resultant building average will be modeled using an US Environmental Protection Agency (EPA)-approved air model (ISCST3) to derive the effective dose equivalent at the fenceline If the modeling indicates that a level of 0 1 mrem will be exceeded at the Site fenceline because of demolition of Building 776/777, additional decontamination and/or removal will be performed Engineering controls such as the application of fixatives and/or encapsulants will then be applied to areas with significant remaining contamination. The air modeling results will be provided to the LRA as part of a project specific final characterization report

In addition to evaluating the impact of the demolition at the Site boundary, the modeling will be used to finalize the work area boundaries/controls and worker protection requirements during demolition The modeling will provide conservative estimates of the potential dose to the immediate and collocated worker and the potential deposition of contamination during demolition Based on these results, work area boundaries and personnel protection equipment will be established in the health and safety plan, radiological work permits (RWPs), and job hazard analysis Project area air sampling and personnel monitoring will be used to verify these protection factors/controls are effective Project area air sampling and personnel monitoring could involve high and/or low volume air samplers within the work area and lapel air samplers. Based on the results of this monitoring and the ambient conditions, the controls may be increased or decreased, as necessary throughout the demolition project.

Radiological controls and monitoring during demolition will be performed in accordance with the DOE approved Site Radiation Protection Program (RPP), RPP-0001, Revision 3. The Site RPP is implemented through the Site Radiological Control Manual, MAN-102-SRCM, Revision 1 and the Radiological Safety Practices Manual, which implement the requirements of 10 CFR Part 835 These requirements and implementing documents are focused on occupational (worker) exposure and protection and are based on the process of maintaining worker exposure to ALARA Section 6 1 of this modification addresses air monitoring and standards for emissions and public health and environment protection. Enhanced radiological controls will be applied for outside work, as applicable, such as continuously evaluating wind direction impact on air monitoring locations

Full-time Radiological Control Technician support will be used during demolition activities to ensure the radiological controls are consistently implemented to minimize the dose to individuals, the environment and the public from exposure to DOE-added radioactive materials.

The pre-demolition characteristics of the soil surrounding the project will need to be assessed to ensure that the project contribution to soil contamination is as low as reasonably achievable. Since the project is predominantly surrounded by paving, the surrounding area may be periodically sprayed and/or cleaned to ensure that particulate matter does not accumulate throughout the demolition project and become available for re-suspension by wind The preliminary assessment of the soils surrounding the project and the modeling projection of the potential soil deposition will be included in the project specific final characterization report, which will be provided to the LRA

4.2 Building 776/777 Project Specific Final Characterization

Following decontamination and/or removal efforts, a final characterization will be conducted, followed by air modeling to verify the 0 1 mrem maximum dose contribution from Building 776/777 demolition The survey will be conducted in accordance with a project-specific characterization plan, which will be submitted to the LRA for review and approval

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The measurements that will be performed during final characterization will be total surface contamination The final characterization survey results will be included in a project specific characterization report and submitted to the LRA. This process will confirm that decontamination activities (i e , decontaminate or remove) are complete, residual contamination will not result in a dose of greater than 0 1 mrem at the site boundary, and the facility is ready for application of fixatives followed by demolition

Non-radiological contaminants such as hazardous waste/substances, beryllium, PCBs, and asbestos will be characterized and/or removed before the final characterization is completed and will be managed in accordance with Industrial Hygiene and Waste Acceptance Criteria requirements Building characterization for non-radiological contaminants before demolition will be documented in the project-specific characterization report or other reports provided to the LRA, such as the asbestos clearance certification and demolition permit application

Once the facility characterization is complete, fixatives and encapsulants will be applied throughout the facility Areas that will not be encapsulated will be those areas that meet the unrestricted release criteria For example, the offices, annex and potentially the vault area may not require encapsulants

5.0 Demolition Activities and Methods

Facility demolition will involve the use of large mechanical equipment, which may include excavators equipped with a hydraulic hoe-ram and grapple, hoists and cranes, and front-end loaders These will be used to size reduce, segregate, and load the concrete, steel and other facility materials into waste containers, with enhanced controls for radiological protection. The primary demolition steps and mechanical techniques for dismantling, segmenting, and demolishing will be provided in activity-specific work package(s)

Excavator-mounted attachments are industry standard for a variety of demolition projects, and provide a controlled method to disassemble a structure Attachments include concrete pulverizers, shears, grapples, and rams Demolition methods that may be used on concrete floors and thick walls include abrasive cutters, diamond wire cutters, paving breakers (i e , jackhammers), and cracking agents

After facility components and structures have been disconnected and disassembled, they will be size reduced and packaged for disposal Removal of large items and sections of walls and flooring will be accomplished using mechanical lifting and hauling devices, such as hoists and cranes Such devices will be inspected and approved for the work, and operated by qualified operators Excavation work will be conducted in accordance with the Occupational Safety and Industrial Hygiene (OS&IH) Program Manual, which includes requirements for soil disturbance permits, if applicable, such as when excavating buried structures that contact soil

5.1 Demolition Planning and Execution

Demolition activities will be executed using the Site Integrated Work Control Process (IWCP). The work packages will contain the detailed work instructions, selected demolition methods, and demolition sequence including radiological controls, health and safety practices, and waste management requirements

A qualified, experienced demolition contractor will perform the demolition activities for Building 776/777, and a Colorado licensed professional structural engineer and certified safety professional will monitor demolition activities to ensure they are conducted safely. The demolition contractor will prepare a Contractor Demolition Plan before initiating demolition activities The Contractor Demolition Plan will

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be prepared in accordance with Occupational Safety and Health Act, 29 CFR 1926, Subpart T, and will detail the methods to be used to demolish the facility

The demolition process will begin with the mobilization of the demolition contractor followed by demolition site preparation As part of demolition site preparation, existing features associated with Site utility systems will be located, marked, and evaluated for isolation purposes. The sanitary sewer system will be isolated to prevent inflow of inappropriate wastewater generated by demolition dust control activities

Electrical power requirements will be identified as a part of the planning process Maintaining sump and foundation pumps for control of groundwater, power to sanitary sewer lift stations, and some area lighting may be necessary However, it is likely that power fed from the main distribution system will have been terminated and decommissioning activities will be supported by temporary power

Protective barriers or fences may be erected around permanent Site features designated to remain during demolition and ER. Electrical distribution switch gear, overhead electrical distribution lines, area lighting, groundwater monitoring wells, and fire protection system hydrants and post indicator valves that will remain operational during and/or after facility demolition will be protected, as required, and flagged for added operator awareness and overall visibility

As necessary, run-on and run-off controls will be implemented, temporary diversion berms, erosion control silt fencing, and interceptor ditches will be installed, and existing drainage culverts and ditches will be cleaned out as required to divert significant surface flow away from the demolition site The installation of run-on/run-off controls will be coordinated with Site Services and Environmental Management personnel responsible for the surface water monitoring system surrounding the demolition area Traffic patterns and loading areas will be established to facilitate waste management activities Final site grading will be determined and performed in consultation with ER

5.2 Demolition Hazards, Controls, and Monitoring

Demolition activities present hazards to workers and the environment. Environmental impacts will be minimized through implementation of procedures designed to prevent uncontrolled release of waste, to control water run-on and run-off, and to minimize fugitive particulate emissions The environmental protection procedures will be detailed in the work packages. Other hazards include radiological and industrial Hazard controls and monitoring during demolition are discussed in the following sections. Table I-3 outlines the potential controls, depending on the status of the building, during demolition.

5 2.1 Air Emissions Control

In accordance with the Colorado Air Quality Control Commission Regulation 1, a Dust Control Plan will be prepared before initiation of demolition activities that will describe the specific methods to be used to control fugitive particulates during demolition activities Enhanced control methods will be used to keep fugitive emissions as low as reasonably achievable As appropriate for each activity, the following list provides typical methods to be used to suppress fugitive emissions

- A controlled water spray or fixative will be used to minimize fugitive particulate emissions without resulting in excess accumulation or run-off Depending on the work location, a water truck or hydrant may be used
- A flag or windsock will be used to assist workers in maintaining the optimal location while directing the water spray
- Amended water will be used in the event that standard dust control methods are not consistently effective

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Table I-3
Demolition Methodology

Potential Demolition Situation	Potential Control	Control Documentation/Evaluation

Walls, floors, ceilings, or columns/joints have been decontaminated	• Work boundary, exclusion zones
	• Personal protection equipment
	• Water spray (remote or direct)
	• Tailgate meetings and daily planning, involving engineering and health and safety personnel
	• Wind restrictions
		• Contractor Demolition Plan
		  • Dust Control Plan
		• RWPs
		• Work packages
		  • Job Hazard Analysis
		• Health and Safety Plan
		• Worker and work environment monitoring results
		• Radiological ambient air monitoring program (RAAMP) results

Walls, floors, ceilings, or columns/joints have been removed	• No action required	• No action required

Walls, floors, ceilings, or columns/joints decontamination/removal was not feasible – encapsulants applied	• Work boundary, exclusion zones
	• Personal protection equipment
	• Water spray (remote or direct)
	• Tailgate meetings and daily planning, involving engineering and health and safety personnel
	• Wind restrictions
	• Encapsulants
	• Decreased wind restrictions
	• Stockpile restrictions
	• Amended water
	• Fixatives/surfactants
		• Contractor Demolition Plan
		  • Dust Control Plan
		• RWPs
		• Work packages
		  • Job Hazard Analysis
		• Health and Safety Plan
		• Worker and work environment monitoring results
		• RAAMP Results

Walls, floors, ceilings, or columns/joints decontamination/removal are not feasible – encapsulants applied and the area was delineated with paint	• Work boundary, exclusion zones
	• Personal protection equipment
	• Water spray (remote or direct)
	• Tailgate meetings and daily planning, involving engineering and health and safety personnel
	• Wind restrictions
	• Encapsulants
	• Decreased wind restrictions
	• Stockpile restrictions
	• Amended water
	• Fixatives/surfactants
	• Specific controlled demolition procedure
		• Contractor Demolition Plan
		  • Dust Control Plan
		  • Specific Procedure
		• RWPs
		• Work packages
		  • Job Hazard Analysis
		• Health and Safety Plan
		• Worker and work environment monitoring results
		• RAAMP Results

- Water spray nozzles may be mounted directly on demolition equipment arms to target the spray directly at the work area The spray velocity will be minimized to provide wetting without excessive runoff or aerosolization
- Facility debris will be loaded into approved waste containers These containers will be covered when unattended and/or not in use to control fugitive particulate emissions (typically overnight)
- Limitations on waste piles will be established to ensure that building rubble is containerized in a timely manner Fixatives or covers will be applied to waste piles when unattended and/or not in use to minimize dust (typically overnight)
- Roads may be periodically sprayed and/or cleaned
- Dust control devices or shrouds may be used on individual pieces of equipment.
- Demolition work will be suspended when wind speeds exceed 30 mph, and work will be evaluated by a safety professional before proceeding Demolition work will be halted when sustained winds exceed 44 mph, in accordance with the Site OS&IH Program Manual

Dust control measures will be applied and evaluated for effectiveness throughout the demolition activity Air monitoring of potential project emissions, which is not a control, but a means of assessing control effectiveness is documented in Section 6 1

5.2.2 Radiological Protection and Control

Radiological controls and monitoring during demolition will be performed in accordance with the DOE approved Site Radiation Protection Program (RPP), RPP-0001, Revision 3 The Site RPP is implemented through the Site Radiological Control Manual, MAN-102-SRCM, Revision 1 and the Radiological Safety Practices Manual, which implement the requirements of 10 CFR Part 835 These requirements and implementing documents are focused on occupational (worker) exposure and protection and are based on the process of maintaining worker exposure to ALARA. Section 6.1 of this modification addresses air monitoring and standards for emissions and public health and environment protection Enhanced radiological controls will be applied for outside work, as applicable, such as continuously evaluating wind direction impact on air monitoring locations

Full-time Radiological Control Technician support will be used during demolition activities to ensure the radiological controls are consistently implemented to minimize the dose to individuals, the environment and the public from exposure to DOE-added radioactive materials

Engineering controls will be utilized during demolition activities in accordance with the controls specified in the Air Emissions Control section above Measures will be taken to minimize the dose to individuals by a combination of fixatives, encapsulants, and the use of administrative controls

Contamination and airborne radioactivity surveys will be performed as necessary to document and detect changes in the radiological conditions in the work area These surveys will be used to ensure the adequacy and effectiveness of engineering controls in containing radioactive material and minimizing dose In addition to the Site sampling network discussed in Section 6 1, project-specific air samples will be collected and evaluated as quickly as practicable using the appropriate site approved counting techniques and equipment.

The specific radiological controls and monitoring requirements that will be used during demolition activities, including waste container loading, will be identified in the RWP for the applicable task(s) being performed The RWP controls will be evaluated against the adequacy and effectiveness of engineering controls and may be upgraded or downgraded as appropriate during the course of demolition activities

Once the building decontamination and characterization are complete, a final air dispersion model run will be used to develop the final work area boundaries and worker protection requirements The

immediate and collocated work area requirements and personal protective equipment (PPE) will be based on the regulatory protection factors for determining airborne postings and personnel protection requirements The work area boundaries and PPE will initially be based on the final model run and conservative assumptions Once work area sampling results become available, these controls may be modified, as necessary, throughout the demolition

5.2.3 Industrial Hazards and Controls

The demolition contractor will be required to cover industrial hazards and controls in the Contractor Demolition Plan and in the Job Hazard Analysis A Colorado qualified structural engineer and certified safety professional will monitor demolition activities to ensure they are conducted safely Industrial Hygiene will conduct monitoring as necessary for both chemical hazards (e g dust, silica, metals, and gases) and physical hazards (e g noise, heat, and cold) Engineering and administrative controls will be used to mitigate the potential hazards to workers and the environment

The selected demolition alternative was chosen in part because it minimizes industrial hazards relative to the other alternatives evaluated Demolition will be conducted using heavy industrial equipment, and personnel will not be working inside the structure during demolition. Stop work will be implemented in accordance with the Stop Work Action procedure, 1-V10-ADM-15 02, all employees at RFETS are responsible for stopping work when unsafe conditions are identified

6.0 Environmental Protection and Monitoring

The ARARs and National Environmental Policy Act values presented in Sections 7 and 8 of the DOP have been reviewed relative to building demolition, and have been amended as necessary to address demolition through a minor modification to the DOP The following sections discuss other environmental considerations and requirements for demolition

6.1 Site Air Monitoring

Environmental air monitoring will be performed in accordance with the requirements of the Site Integrated Monitoring Plan (IMP). The existing RAAMP sampler network will be used for ambient air monitoring during removal activities The RAAMP sampler network continuously monitors airborne dispersion of radioactive materials from the Site into the surrounding environment. Thirty-eight samplers comprise the RAAMP network. Fourteen of these samplers are deployed at the Site perimeter and are used to confirm Site compliance with the 10 mrem dose standard mandated in 40 CFR Part 61, Subpart H; these samplers will be used to confirm that demolition has contributed less than 0 1 mrem of dose potential to public receptors Filters from the 14 perimeter RAAMP samplers are collected and analyzed monthly for uranium, plutonium, and americium isotopes Results of compliance sampling at the Site perimeter are compiled, communicated to project management as soon as practical following laboratory analysis, and presented in the Quarterly Environmental Monitoring Reports and the Radionuclide Air Emissions Annual Report

In addition to the perimeter network, project monitoring (PM-Rad) will be carried out during demolition and removal activities using ten existing RAAMP samplers arrayed around the Site's Industrial Area PM-Rad characterizes potential short-term emissions from the project on ambient air quality and receptors closer to the projects than the Site perimeter by quantifying gross alpha activity on filters Gross alpha analysis can be performed in a much shorter time frame (days versus weeks) than is necessary for isotopic analysis

Beginning at least one week before the start of demolition, PM-Rad sampling will begin on a weekly filter exchange schedule In accordance with the IMP, filters will be collected weekly and screened for long-lived alpha contamination and/or gamma emissions Results of the radiation screening will be available about four workdays after submitting filters to the laboratory The results will be used to calculate the

airborne concentration in units of activity per volume of air drawn through the filter (pCi/m^3) These results will then be compared to two predefined Action Levels, based on the expected isotopic composition of materials to be disturbed Action Level 1 will correspond to a 1 0 mrem dose rate, and Action Level 2 will correspond to a 5 0 mrem dose rate at the sampling location, based on the assumption that the hypothetical receptor has been exposed for two weeks (one week of sample collection, one week for analysis) All alpha activity is assumed to derive from Pu-239 for the purpose of determining whether Action Levels have been exceeded, until isotopic results prove otherwise, this approach provides conservatism

For radionuclide concentrations below Action Level 1, PM-Rad will continue with weekly filters being screened for radioactivity If Action Level 1 is exceeded, affected weekly filters from the area-specific samplers will be submitted for isotopic analysis on an expedited schedule Site environmental personnel will meet with project personnel to evaluate the project for unexpected conditions and to determine what additional sample collection and analysis may be warranted Site environmental personnel will contact project personnel within six hours of receiving results if Action Level 2 is exceeded, and will meet with project personnel to reassess project parameters and evaluate measures to mitigate future emissions Mitigating measures may include additional dust control efforts, modifications to demolition techniques, reevaluation of work response to environmental conditions (e g , high wind), and cessation of work When sample isotopic results exceeding Action Level 2 also indicate that a 10 mrem dose to the most impacted public receptor could occur (based on the indicated concentration remaining constant for one year), project operations will cease until appropriate controls are in place Results of performance monitoring will be communicated to project management as soon as practicable following laboratory analysis, and will be summarized in the Quarterly Environmental Monitoring Reports

6.2 Soil Disturbance Permit

Before the demolition of any building within the Building 776/777 Closure Project, the demolition contractor will complete a Soil Disturbance Evaluation Form The contractor will identify the location of underground utilities (i e., sewer, process waste, storm drain, telephone, water, fuel, and electric lines), as well as any known environmental, waste, radiological, and/or safety hazards When completed, a Site excavation specialist, who will coordinate the review and approval of the demolition work with the appropriate organizations, will review the Soil Disturbance Evaluation Form Soil disturbance activities will not be performed until the excavation specialist has provided written approval for the work to proceed.[4]

6.3 Demolition Notification

Prior to the demolition of any building or portion of a building within the Building 776/777 Closure Project, the demolition contractor will prepare and submit a Demolition Notification to CDPHE for review and approval in accordance with CAQCC Regulation No 8, Part B Demolition activities will not be performed for that portion until CDPHE has provided written approval for the work to proceed

6.4 Migratory Bird Clearance

Before the demolition of any building within the Building 776/777 Closure Project, a survey will be conducted to ensure the planned demolition activities will not impact migratory birds or their nests This inspection is for nesting birds in and around facilities prepared for demolition The Building 776/777 project will comply with the substantive portions of the Migratory Bird Treaty Act, which can include establishment of alternative nesting habitats away from building demolition

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[4] Soil disturbance requirements are contained in Chapter 45 of the RFETS OS&IH Program Manual, entitled "Excavation and Trenching "

6.5 Surface Water Management

During facility demolition, surface water run on/run off will be controlled using standard construction methods, including silt fences, hay bales, and diversion ditches per the Site Storm Water Pollution Prevention Plan[5] Water from dust control and/or cutting activities will be managed as incidental waters in accordance with the Site National Pollutant Discharge Elimination System (NPDES) Permit[6] and procedure for the control and disposition of incidental waters[7] The planning of surface water controls will consider the area to ensure that the run-off is controlled adequately, and a process will be established to inspect the run-off controls during precipitation events during non-routine hours Surface water monitoring will be conducted in accordance with the Site IMP Additional performance monitoring stations will be installed, as necessary, based on activity-specific assessments performed by Site water quality Subject Matter Experts Enhanced controls may be implemented in the immediate work area where demolition is occurring to prevent release of dust control water

6 6 Groundwater Management

The Sampling and Analysis Plan (SAP) for the D&D Groundwater Monitoring of Buildings 707, 776/6777, 371/374, 865, and 883[8] describes the well installation, well development, and initial groundwater sampling activities planned for the Building 776/777 Closure Project during decommissioning

The levels of contamination in groundwater surrounding and beneath the footprint of the Building 776/777 Closure Project vary significantly among the sample points The principal region of higher levels of groundwater contamination in this area is known as the "Industrial Area (IA) Plume "[9] The IA Plume is believed to result from contamination migrating from multiple Individual Hazardous Substance Sites (IHSSs) Its principal constituents are three volatile organic compounds (VOCs) trichloroethene, tetrachloroethene, and carbon tetrachloride IHSS 118 1, located immediately north of the building, is the likely source of carbon tetrachloride contamination that exceeds RFCA Tier I Action Levels in groundwater at the northwest portion of the building Sources of the IA plume are not well known, and the effort to determine the sources is underway[10]

In the event groundwater is encountered during facility demolition, it will be removed, as necessary to characterize and remediate the interior surfaces of the building, specifically the basement, sumps and buried equipment pits Samples will be collected as necessary to determine the disposition pathway for the pumped groundwater If the water is contaminated, but there is no threat to surface water protection standards, the groundwater may be left in the subsurface structure with controls sufficient to protect the health and safety of workers and the public until remediation during ER If the water is contaminated and is a threat to surface water protection standards, the water will be pumped to a treatment facility until remediated during ER. Project-specific controls will be detailed in the Contractor Demolition Plan and work package(s) for the demolition activity

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5 *RFETS Storm Water Pollution Prevention Plan* (Rev 1), April 2003

6 NPDES Permit No CO-0001333, October 2000

7 Control and Disposition of Incidental Waters (1-C91-EPR-SW 01), (latest revision)

8 Sampling and Analysis Plan (SAP) for the D&D Groundwater Monitoring of Buildings 707, 776/777, 371/374, 865, and 883 (latest revision)

9 Integrated Monitoring Plan Background Document, FY 2000, September 1999, and the 1999 Annual RFCA Groundwater Monitoring Report, Figure 8-1, Monitoring Well Locations, East Industrial Area VOC Plume

10 Sampling and Analysis Plan for Groundwater Monitoring of Industrial Area Plume, Rev 1, 01-RF-00907, PADC-2001-00576

7.0 Transition to Environmental Restoration

Demolition activities performed within the scope of the Building 776/777 DOP will be coordinated with activities performed within the scope of the ER RSOP or other ER decision document. The goal is to achieve an integrated process that minimizes risk to workers and the environment, minimizes the generation of remediation wastes, streamlines technical processes, and reduces Building 776/777 Closure Project costs During decommissioning

- Electrical and water lines will be removed Underground water lines located outside the facility footprint will be plugged or capped A map showing the locations and sources of these utility lines will be maintained in the Building 776/777 Closure Project files and provided to the ER Program.
- Process waste lines, tanks, and other lines associated with the process waste transfer system (i e , the "new" process waste lines) and any "old" process waste lines within the facility will be removed and/or isolated at the facility perimeter A map, showing the locations and sources of the process waste lines will be maintained in the Building 776/777 Closure Project Files and provided to the ER Program
- The Building 730 underground plenum deluge tanks will be emptied of liquids and sludges, and contamination will be fixed Mechanical and electrical equipment in Building 730 will be removed. Two underground process waste tanks in Building 730 were cleaned and filled with foam in 1996[11] These tanks will be handed off to ER following completion of these activities
- Sanitary sewer lines, tanks, and ancillary equipment will be flushed with clean water and capped or removed to the nearest isolation valve
- Structural material within three feet of the final grade will be removed, including building slabs and foundations
- Structures below three feet of the final grade will be characterized and removed if the structure does not meet the unrestricted release criteria Buried metal and concrete from the buried equipment pits (Set 84) will also be removed if they do not meet the unrestricted release criteria

Footing drains will be dispositioned based on input and guidance from the Environmental Restoration (ER) team, taking into account the post-closure water balance and movement of groundwater and contaminants If the decision is made to obstruct flow through the footing drains, several areas of the drain will be excavated and backfilled

In the event there is a gap between decommissioning and remediation activities, the Site Services Project will be responsible for interim surveillance and maintenance activities. The hand-off from decommissioning to the landlord organization will be documented in writing, by the Decommissioning Project, RISS Project, and ER Program.

ER will characterize and remediate as necessary the soils under the building and associated with exterior IHSSs and potential areas of concern (PACs), following the established RFCA soil action levels Remediation of the under building contamination is expected to follow slab removal Therefore, the Building 776/777 project is not planning for backfill ER will also characterize (and remove if necessary) the process waste lines beneath the floor slabs and the underground tanks and pipelines outside the footprint of the building per the ER RSOP

[11] Completion Report for the Underground Storage Tanks Source Removal Project, RF/ER-96-0050, September 23, 1996

City of Westminster, Al Nelson, May 20, 2003		
Cmt. #	**Comment**	**Response**
1	As part of our review we looked at the *Building 776/777 Closure Project Decommissioning Operations Plan (DOP)* There are several things discussed in the DOP that refer to a major modification of the DOP that will detail the demolition process Since your Appendix I is serving the purpose of the major modification, there are discrepancies between the DOP and your appendix that need clarification. These are listed below In addition, because of these discrepancies, the original *Building 776/777 Closure Project Decommissioning Operations Plan (DOP)* should be totally revised and brought up to date	The original DOP was revised to eliminate the inconsistencies between the original DOP and Appendix I, this revision was completed through a minor modification, approved June 10, 2003 A RFCA decision document is not generally revised to reflect status, but only revised to reflect modifications in process or the decision. The Project Close-out Report and Final Characterization Report will be used to document how the decommissioning process was conducted. The ER/D&D meeting is used to convey progress and status on a more routine basis. In addition, the site is always open to answering and addressing progress and status questions from the public.
2	We looked at the alternatives by first reviewing only the "Capital Cost", and arrived at the conclusion that Alternative 4 would be your choice based on cost alone After coming to this conclusion, we read the particulars for each alternative.	The alternative was not selected based solely on cost. As indicated in Section 2 5 of Appendix I, Alternative 4 was the only alternative that passed the initial screen for effectiveness, implementability, and cost.
3	The plan is not very specific. That is, it lacks details as to how the work will be performed, controlled, evaluated, etc It defers these details to other plans, work packages, etc. The presentation of the alternatives and the justifications used in each are lacking detail A more detailed alternatives analysis needs to be performed for all four alternatives.	The level of detail in the DOP modification is consistent with other RFCA decision documents, and the requirements of the Implementation Guidance Document (IGD). The alternatives analysis was completed in accordance with the guidance in the IGD, and is consistent with the analysis completed in other Site decommissioning and environmental restoration RFCA decision documents. As indicated in Section 1.3 of Appendix I and the response to comment 1, the public will be kept informed and involved in the Building 776 decommissioning process
4	It appears that a combination of Alternatives 3 and 4 would be more desirable	Alternatives 3 and 4 cannot be combined. Once the demolition is initiated, the facility will be unstable and no one will have access to the facility As a result, selective containment during demolition is not feasible Alternative 4 does involve the removal of portions of the facility (when feasible) during preparation of the building for demolition.
5	Alternative 3 gives a more detailed discussion of the demolition techniques to be used under this alternative Apply this detail to the other three alternatives	Additional detail was added to the alternative description in Appendix I prior to initiating the public comment period.
6	Under all sections pertaining to "Administrative Feasibility " "There may be an impact to adjoining property..." Based on what and what type of impact(s)?	All demolition activities at RFETS could result in some adverse impacts off-site, however, the possibility is remote. Air modeling has been completed to evaluate releases to the public, which indicates there is no anticipated adverse impacts from the B776 demolition.

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Cmt. #	**Comment**	**Response**
7	Add a section that discusses how lessons learned from other buildings (i.e , B771, B883 and B865) will be applied to the demolition of B776/777	Lessons learned are always incorporated at RFETS, it is a requirement of the Integrated Safety Management Program. Since this is an internal program and contractual requirement, it is not included in the DOP modification, which is a RFCA decision document and subject to different requirements. ISMS is not optional and is included in the Kaiser-Hill contract with penalties for noncompliance
8	Independent Verification and Validation is not discussed. It is imperative that an IVV be performed to determine the quality of characterization of the building, since B776 will not be an unrestricted release building.	The independent verification section is contained in the original DOP, Section 4.7.
9	There is no mention of the B771 to B776 tunnel The details addressing the tunnel need to be incorporated.	The tunnel is not within the scope of the Building 776 Project, the tunnel will be dispositioned by the Building 771 Project.
10	There is no mention of long-term stewardship requirements Please add a section on how long-term stewardship requirements will be captured or detailed.	Since all contaminated portions of the building will be removed from the site and appropriately disposed, there are no unique long-term stewardship requirements associated with this project.
11	Section 2.1.2. Technical Feasibility a. Core sampling of cinderblock walls should be done. b A map should be included that shows areas affected by the fire c A map should be included that shows areas that were filled with concrete d. "The post fire decontamination effort was conducted to the existing radiological exposure and safety standards current at the time." What were they? What is the current characterization?	a. A characterization plan is currently being prepared and that plan will outline the methods and process for determining the nature and extent of contamination prior to demolition. Core sampling will be part of the characterization process. b-d. Maps showing fire-affected areas are provided in the RLCR in Figures 9-11 A map showing areas that were filled with concrete is provided in Figure 7 of the 776/777 DOP. All current characterization information is preliminary, and the measurements are biased by the equipment that is still in the facility Since the characterization information is preliminary and the characterization effort will be addressed by a different plan, maps of potential contamination will not be included in the DOP The results of this "in process" characterization will be detailed in the final characterization report, which is consistent with the requirements of the D&D Characterization Protocol
12	Section 2.2.2. Availability of Services and Materials a. " over an active facility." Define active facility	The word active has been removed from this sentence

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Cmt. #	**Comment**	**Response**
13	Section 2.3.1. Effectiveness a. Describe what the "short-term adverse impacts" are?	"High worker risk due to elevated work activities, more "hands on" activities versus use of heavy equipment, and increased potential for dose to workers. Assembling and dismantling rolling scaffold and building additional containment's increases worker industrial and radiological risk. Removal of the interior structural elements could degrade the structural integrity of portions of the remaining facility possibly causing unplanned collapses." In addition, elevated work, rigging of heavy structural components and the potential instability of the building are activities that have been identified as high hazards, elevated work and rigging have been identified in the top 5 hazards at Rocky Flats.
14	Section 2.3.2. Availability of Services and Materials a. Define "short and long term."	The phrases short-term and long-term have been removed from this sentence.
15	Section 2.4. Alternative 4 a. "Hard to characterize areas would be investigated using a variety of measurement and sampling techniques." Describe what these are and how it would be done b "Final scan results would be compiled in a Project-Specific Characterization report that is submitted to CDPHE." Change to read, "submitted to CDPHE and local governments." c. "Radiological monitoring to demonstrate protection of workers, co-located workers and the public would be utilized." Describe how this will be done. d. "If contamination is present in an inaccessible area " How will you know?	a A characterization plan is currently being prepared and that plan will outline methods to assess hard to characterize areas. The methodology is currently being developed and belongs in the project-specific characterization plan, not the DOP As indicated in Section 1 3 of Appendix I, it is anticipated that the public will be interested and involved in the characterization plan. b In accordance with RFCA, this plan is not a document for public review; however, the document will be available to the public and local government for information. As indicated in Section 1 3, it is anticipated that the public will be interested and involved in the characterization plan. c. Immediate and collocated worker monitoring will be conducted in accordance with the RFETS Radiation Protection Program Public monitoring will be conducted in accordance with the IMP d. A characterization plan is currently being prepared and that plan will outline methods to evaluate inaccessible areas.
16	Section 2.4.1. Effectiveness a. Justify what this section is saying	The Air Modeling Technical Document provides a technical basis for this statement. The Air Modeling Technical Document was provided to the public on April 23, 2003

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17	Section 2.5 a. There is not enough detail here to justify why Alternative 4 was chosen other than cost. Table I-1 does not provide enough detail to justify the choice Arguments can be made that some of the scores can be higher or lower based on the judgment of who is doing the comparison What were the criteria used for assigning each score? Detail how all the scores assigned were arrived at and justify all the scores assigned	This analysis was prepared in accordance with the IGD, and many of the categories/information require a subjective analysis. The Site contends the analysis does provide enough detail to select an alternative
18	Section 3.0, Pre-Demolition Activities and Methods a. What about beryllium and other contaminants, i.e , chemicals, VOCs? What about the industrial area plume and ground water? Should have some discussion as to how these will or will not be handled b "To date, preliminary characterization of the building has been conducted for work planning purposes." What were the results? Should detail what the results were here. c "The final decision-making will be made at the project level and documented in the work packages " Describe the process that will be used to make the decisions d. Page 14 of 26 What is "high?" What is "medium?" What is "low?" If a concise number will not be provided, there must be a detailed process described here that will tell how "specific decisions will be made on a case-by-case basis." The If And The And, does not make sense. e. Table I-2 does not provide adequate detail see comment in "7" above	a. Beryllium controlled and regulated areas will be closed before demolition, per applicable regulations. Containerized chemicals and liquid PCBs will be removed before demolition. RCRA permitted and interim status units will be closed in accordance with the 776/777 DOP before demolition Asbestos will be removed and certified in accordance with State regulations before demolition. The demolition activity should not impact the industrial area plume and groundwater b The results of this "in process" characterization will be detailed in the final characterization report, which is consistent with the requirements of the D&D Characterization Protocol. c The process used to make these decisions is outlined in the DOP, particularly Tables I-2 and I-3 in Appendix I d. This section of the DOP was written to give the reader a conceptual, simplified view of the preparation of the facility for demolition. There are no levels or definitions for high, medium, or low These levels cannot be defined because it is a process decision based on balancing risk to workers and the environment. The subjective nature of the section is predicated on meeting the quantitative commitment of less than $1/100^{th}$ of the regulatory limit at the fenceline e The decisions for each action (decontamination, encapsulation, and/or removal) are complex. If the action (decontamination and/or removal) will not substantially reduce the overall source term to the immediate and collocated worker, public and environment, then the area will be fixed or encapsulated. It would be inappropriate to subject the workers to the risks associated with decontamination and removal, if there is no appreciable reduction in source term

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Cmt. #	**Comment**	**Response**
19	Section 4.1 a. Please describe when worker dose would trigger an action, and what those actions may include I still believe the drawing that was shown to us at the meeting in Broomfield and a little detail of what it meant would be invaluable and should be included in this section. b Discuss groundwater and surface water controls here	a. Additional discussion of this process has been added to the DOP modification. Worker protection is addressed by several on-site programs and federal regulations. Worker health and safety requirements are not optional and are included in the Kaiser-Hill contract with significant penalties for noncompliance b The surface water section has been clarified Groundwater should not be impacted by this activity
20	Section 4.2 a. "Non-radiological contaminants such as " See comment 8 a above	Beryllium controlled and regulated areas will be closed before demolition, per applicable regulations. Containerized chemicals and liquid PCBs will be removed before demolition RCRA permitted and interim status units will be closed in accordance with the 776/777 DOP before demolition Asbestos will be removed and certified in accordance with State regulations before demolition
21	Section 5.0 a. "The primary demolition steps will be provided in activity-specific work package(s)." Provide a general description of what these steps will be here	The primary steps will be similar to commercial practices, which are outlined in the Facility Disposition RSOP

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Cmt. #	**Comment**	**Response**
22	Section 5.1 a. Add additional wording on traffic patterns and loading areas for waste management like the language used in the B371 and B771 DOPs. b Add a section on Mobilization the same as Section 4 7 1.2 from the B771 DOP or Section 4.5 1 of the B371 DOP c " a Colorado qualified structural engineer and certified safety professional will monitor demolition activities. ." Change Colorado qualified structural engineer to a Colorado licensed professional structural engineer. d. The CDPHE and performance monitoring personnel should also be monitoring all activities e "The demolition contractor will prepare a Contractor Demolition Plan " Who is the contractor?	a Section 5 1, sixth paragraph contains the traffic pattern information similar to the other DOPs The information has been reorganized to flow better in the document and be more concise b Section 5 1, third paragraph contains the site mobilization and preparation information similar to the other DOPs The information has been reorganized to flow better in the document and be more concise c The OSHA requirement does not specify that the engineer must be "licensed," but qualified The language in Appendix I is more consistent with the actual OSHA requirement, however, the language in Appendix I has been changed as requested. d. The Integrated Monitoring Plan (IMP) specifies the performance monitoring requirements and IMP personnel are part of the B776 project team CDPHE provides constant oversight for RFETS activities e. This work has not been subcontracted, and cannot be subcontracted until the decision document is approved.

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Cmt. #	**Comment**	**Response**
23	Section 5.2.1 a. How will the run-off from water spray be controlled? b. (typically, overnight) Remove the word typically c. "Limitations on waste piles " What will these limitations be? Describe them here Address emergency actions that may need to be taken. Perform a cost-benefit analysis of conducting demolition the first half of a work day and then packaging the waste generated the second half of a work day in order to not have waste piles to contend with. d. Wind speeds seem excessive. Justify why these speeds are used.	a. With standard best management techniques, "using standard construction methods, including silt fences, hay bales, and diversion ditches " b The word typically is accurate. c. Maximum volume and storage times cannot be included in the DOP However, these stockpiles will be controlled throughout the demolition to ensure that the Radiation Protection Standards for the immediate and collocated worker, public and environment are maintained. Waste pile criteria will be finalized and documented in work packages CDPHE will have the opportunity to participate in work package review per the consultative process outlined in RFCA and in Section 11 of the DOP d. These are the standard site wind restrictions, which are based on industrial safety requirements If the dust cannot be controlled, project operations will cease, regardless of the wind speed. As indicated in Section 5 2 1 of Appendix I, "Dust control measures will be applied and evaluated for effectiveness throughout the demolition activity " Dust control (including wind speed) will be finalized and documented in work packages. CDPHE will have the opportunity to participate in work package review per the consultative process outlined in RFCA and in Section 11 of the DOP
24	Section 5.2.2 a. " . to DOE-added radioactive materials." What does "DOE-added radioactive materials" mean?	"DOE-added radioactive materials" differentiates between the plutonium, americium, and enriched and depleted uranium processed at the Site and the abundant, naturally occurring uranium in local soils and bedrock. Any incidental resuspension of naturally-occurring radioactive materials, due to soil disturbance, heavy equipment traffic, etc , will have minimal dose effect but will still be captured by Site air monitors
25	Section 6.0 a. "through a minor modification ." What is minor?	As defined by RFCA, a minor modification "means a modification that achieves a substantially equivalent level of protection to workers and the environment and does not constitute a significant departure from the approved decision document or the basis by which a decision was previously made or approved, but may alter techniques or procedures by which the work is completed, e g , a change in an RSOP that does not change The final result of the activity (e.g , alteration to a tank closure procedure that still results in a clean closure), or a change in operation or capacity of a treatment system that does not cause the system to exceed effluent limit."

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Cmt. #	**Comment**	**Response**
26	Section 6.1, page 22, second paragraph a. What are the IMP actions levels? Should detail them here	The levels are detailed in Appendix I, Section 6 1
27	Section 6.2 a. " the demolition contractor will complete a Soil Disturbance Evaluation Plan." Why is this the demolition contractor's responsibility? It seems that site personnel should do this evaluation, as they will have a better knowledge of where underground utilities, etc are located.	This is a Site requirement and procurement decision
28	Section 6 3 Add a sentence that says, "The Demolition Notification will be forwarded to local communities after review and approval from CDPHE "	The demolition notification will be available for public information.

RFCLoG, David M. Abelson, June 3, 2003		
Cmt. #	**Comment**	**Response**
1	At the February 24, 2003 Coalition Board meeting, Mark Fern committed to performing close-in monitoring during the B776 demolition At the April 29, 2003 B776 meeting, Kaiser-Hill personnel told local government and Coalition staff that close-in monitoring would be performed during the B776 demolition in two zones. The inner zone around B776 would be designed to protect B776 workers, and the outer zone would be used to establish work boundaries for collocated workers near the demolition area. The DOP Modification includes language regarding the use of performance monitors on the Industrial Area perimeter, as well as ambient air monitors at the Site boundary, but does not identify the use of close-in monitors. Please include language in the DOP Modification that describes the close-in monitoring to which Kaiser-Hill committed, including the purpose, location, and timeframe for the monitoring.	The Coalition's understanding of the monitoring that will be conducted to evaluate and protect the workers and collocated workers is accurate Worker protection is addressed by several on-site programs and federal regulations. These worker protection requirements are not optional and are included in the Kaiser-Hill contract with significant penalties for noncompliance Section 4 1 of Appendix I contains the following, "Based on these results, work area boundaries and personnel protection equipment will be established in the health and safety plan, radiological work permits (RWPs), and job hazard analysis Project area air sampling and personnel monitoring will be used to verify these protection factors/controls are effective Based on the results of this monitoring and the ambient conditions, the controls may be increased or decreased, as necessary throughout the demolition project." This language outlines the process that will be used during worker monitoring The requirements for worker monitoring are documented in the site Radiation Protection Program, which is referenced in Appendix I
2	In addition, the Coalition understands that CDPHE has committed to performing additional air quality monitoring for the B776 demolition. This commitment is not identified in the DOP Modification. While we know the particulars of their monitoring program cannot be determined at this point, we think general language must be added to the DOP Modification that clearly identifies the purpose and scope of their air monitoring	State air monitoring has never been included in a DOP and is usually included in the annual revisions to the IMP The following will be added to the IMP during the next revision cycle, "CDPHE or EPA will perform air monitoring during the B776/777 demolition The type of monitoring will be planned and included in the IMP when the B776/777 demolition plan is complete and the Site monitoring is finalized."
3	The Coalition understands that B776 is contaminated with beryllium, but that specific beryllium air quality standards do not apply to the B776 demolition We also understand Kaiser-Hill has committed to applying lessons learned from the demolition of other beryllium buildings (such as B883 and B865) to determine if beryllium sampling and/or monitoring are warranted for the B776 demolition. This process is not documented in the DOP Modification. Please add language to this effect.	Beryllium controlled and regulated areas will be closed before demolition Lessons learned are always incorporated at RFETS, it is a requirement of the Integrated Safety Management Program. The lessons learned with respect to beryllium monitoring will be captured during the annual revision to the IMP

RFCLoG, David M. Abelson, June 3, 2003		
Cmt. #	**Comment**	**Response**
4	The original B776 DOP (Section 4 7) states that "an independent party, selected by DOE, will perform a verification assessment of the final survey methodology " This commitment was made assuming B776 would be an unrestricted release building The Coalition understands the Site is reassessing the value of IVV for B776, given that Kaiser-Hill has said decontamination to unrestricted release standards does not appear to be technically feasible for many areas of the building. At a minimum, the Coalition believes IVV should be performed for those areas that can be free released. A decision on whether or not to perform IVV on areas that cannot be free released should be based on a comprehensive analysis that will determine how much value IVV will add. This analysis should be identified and outlined in the DOP Modification.	A minor modification of the original DOP was approved on June 10, 2003 The independent verification section was not modified with respect to conducting independent verification Independent verification will be conducted under a separate plan that will detail the process to be used Just as characterization details are not provided in the DOP, the independent verification details cannot be included in the DOP because it will depend on the characterization process used (which is being developed), and the final status of the facility
5	Section 3.0, Pre-Demolition Activities and Methods The Coalition understands that contamination levels are described subjectively as "low", "medium", and "high" in this section of the DOP Modification to give a general idea of how decontamination decisions will be made. Nevertheless, without any guidance for what constitutes "low" versus "high", we are concerned the decision to decontaminate, encapsulate, or remove will be largely subjective. Who will decide whether contamination levels are low, medium, or high? On what are these levels based? Gross contamination levels? Potential health impacts? Other? What will be the general framework for determining how contamination levels, and thus decontamination strategies, will be decided?	This section of the DOP was written to give the reader a conceptual, simplified view of the preparation of the facility for demolition. There are no levels or definitions for high, medium, or low These levels cannot be defined because it is a process decision based on balancing risk to workers and the environment. The subjective nature of the section is predicated on meeting the quantitative commitment of less than 1/100th of the regulatory limit at the fenceline The decisions for each action (decontamination, encapsulation, and/or removal) are complex. If the action (decontamination and/or removal) will not substantially reduce the overall source term to the immediate and collocated worker, public and environment, then the area will be fixed or encapsulated. It would be inappropriate to subject the workers to the risks associated with decontamination and removal, if there is no appreciable reduction in source term. The decisions will be made by D&D management with radiological engineering and air quality input.

RFCLoG, David M. Abelson, June 3, 2003		
Cmt. #	**Comment**	**Response**
6	Section 4 1, Regulatory Framework and Assessment *"If the modeling indicates that a level of 0 1mrem will be exceeded at the Rocky Flats fenceline because of demolition of Building 776/777, additional decontamination and/or removal will be performed."* The Coalition understands the DOP Modification primarily addresses fenceline protection because the DOP addresses compliance with RFCA, which is predominantly based on public and environmental protection. Worker protection, we understand, is addressed by other onsite programs and federal regulations. When Melissa asked in a prior discussion with you whether worker dose would trigger any such action, or just the fenceline dose, your response was that worker protection requirements will trigger actions in addition to the fenceline dose. Please describe when worker dose would trigger an action, and what those actions may include.	Yes, worker protection requirements will trigger actions in addition to the fence line dose It is anticipated that such actions could include modification of PPE, changes in worker boundaries, changes in dust control methods, modifications in equipment Worker protection is addressed by several on-site programs and federal regulations
7	Section 4.2, Building 776/777 Project Specific Final Characterization *"The measurements that will be performed during final characterization will be total surface contamination "* As written above, it is clear that Kaiser-Hill plans to characterize the surface of B776 prior to demolition. It is not clear that characterization efforts will also take into account embedded contamination (such as in cinder blocks) The total amount of contamination remaining in B776 before demolition is obviously a key input into air modeling and subsequent worker and public protections, and as such, must account for both surface and embedded contamination. Based on Melissa's prior discussion with you, the Coalition understands the final characterization plan for B776 will in fact address both surface and embedded contamination This commitment should be clearly identified in the DOP Modification. As the document reads now, embedded contamination will not be taken into account when determining final contamination levels.	A characterization plan is currently being prepared and that plan will outline methods to assess embedded contamination It is anticipated that embedded contamination will be addressed during in-process characterization and detailed in the final characterization report The instruments that have been used and will continue to be used are gamma radiation detection instruments. If there is embedded contamination, it will be detected by the instrumentation. In addition, the history of the building and samples taken to date indicate that the contamination comes from the surface inward, and the highest levels are on the surface Therefore, using conservative estimates of total contamination (surface plus embedded) based on the survey results and assuming all of the contamination is on the surface provides a more conservative result in the air model.

RFCLoG, David M. Abelson, June 3, 2003		
Cmt. #	**Comment**	**Response**
8	Section 7.0, Transition to Environmental Restoration (1) "*Sanitary sewer lines, tanks, and ancillary equipment will be removed, including building slabs and foundations*" Footing drains are not addressed in this section of the DOP Modification. The Coalition understands, however, that footing drains will be dispositioned based on input and guidance from the Environmental Restoration (ER) team, taking into account the post-closure water balance and movement of groundwater and contaminants. Given the importance of water quality to our communities, we believe footing drains should be acknowledged in the DOP Modification. Please add language identifying that the decision to remove or retain footing drains will be made based on input from ER, describe on what the decision will be based, and identify who will then carry out the chosen action (removal vs retention)	The following language has been added to Section 7.0, "Footing drains will be dispositioned based on input and guidance from the Environmental Restoration (ER) team, taking into account the post-closure water balance and movement of groundwater and contaminants. If the decision is made to obstruct flow through the footing drains, several areas of the drain will be excavated and backfilled."
9	(2) "*Structural material within three feet of the final grade will be removed, including building slabs and foundations. Structures below three feet of the final grade will be characterized and removed if necessary per site requirements*" At the February 24, 2003 Coalition Board meeting, Mark Ferri stated that the B776 D&D team would take out the thirty foot pits (from buried metal and stairwells) in the building during demolition. The commitment to remove these pits is not made clear in the DOP Modification, as most of the pits are likely more than three feet below grade and may not qualify for removal as per the quote above. The Coalition believes the decision to remove the pits should be clearly outlined in the DOP Modification so that anyone who works with this document will be aware of Kaiser-Hill's commitment.	The bullet has been clarified with the following language, "Structures below three feet of the final grade will be characterized and removed if the structure does not meet the unrestricted release criteria. Buried metal and concrete from the buried equipment pits (Set 84) will also be removed if they do not meet the unrestricted release criteria."

RFCLoG, David M. Abelson, June 3, 2003		Response
Cmt. #	Comment	
10	(3) "*Before making the decision to leave any unrestricted-release slabs in place, Building 776/777 project management will coordinate with ER on their soil sampling and remediation plans Remediation of the under building contamination is expected to follow slab removal*" Is the implication of this sentence that unrestricted release slabs will be left in place if the levels of under building contamination do not warrant soil remediation? If so, does this statement apply only to slabs deeper than three feet below grade? If not, what are the decision criteria for leaving an unrestricted release slab in place? Are there instances when a non-unrestricted release slab would be left in place? If so, what are the decision criteria for removing or leaving them?	No, this sentence is simply trying to convey that if there is going to be a time gap between decommissioning and ER activities, the projects will coordinate Decommissioning does not want to remove a slab before ER is ready to perform the necessary characterization and remediation This language is identical to the language in the Facility Disposition RSOP and other decommissioning decision documents No slabs will remain in place for the B776/777 project. The basement or portions of the basement and/or footings that meet the unrestricted release criteria and are 3 feet below the final proposed grade may remain in place

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Cmt. #	**Comment**	**Response**
1	Major/minor Revisions to the B776/777 DOP The City and County of Broomfield is concerned with the release of a partially revised document that is not inclusive of all the changes that will be made at a later date to the original B776/777 DOP Broomfield has been given the opportunity to comment on Appendix I, which discusses a dirty demolition, which constitutes a significant departure from the approved decision document. We preferred to have reviewed the entire revised document to ensure there were no contradictions within the document and provided an opportunity to comment on the remaining minor and/or major modifications. Key sections, which Broomfield considers major modification of the DOP, will need to be revised Broomfield considers revisions pertaining to sections of the DOP such as ARARs, revised actions pertaining to the equipment buried under building 776/777, cleanup levels, waste pile management, and modified objectives for the pre-demolition surveys to be major modifications to the DOP, not minor modifications We recommend you work with us during the modification to the original DOP and allow us the opportunity to comment on the remaining revisions.	The original DOP was revised to eliminate the inconsistencies between the original DOP and Appendix I, this revision was completed through a minor modification, approved June 10, 2003 A draft of the minor modification was distributed to the stakeholders on May 20, 2003 at the ER/D&D meeting As defined by RFCA, a minor modification "means a modification that achieves a substantially equivalent level of protection to workers and the environment and does not constitute a significant departure from the approved decision document or the basis by which a decision was previously made or approved, but may alter techniques or procedures by which the work is completed, e g , a change in an RSOP that does not change, the final result of the activity (e g , alteration to a tank closure procedure that still results in a clean closure), or a change in operation or capacity of a treatment system that does not cause the system to exceed effluent limit " All of the changes made to the original DOP were within this definition

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2	In-Process/Final Characterization During final decontamination and prior to encapsulation of contaminated material, Broomfield recommends additional core sampling is performed on areas not being removed to establish the extent of internal contamination that may be released during demolition of the contaminated area. The additional analytical data will assist with modeling and predicting the impact to air quality along with the risk to workers and collocated workers Any area in which it is not feasible to extricate a contaminated wall, ceiling, or column should have additional core sampling performed for contaminates of concerns such as radionuclides, beryllium, asbestos (ACM), or any other constituent of concern. ACM was used extensively in building materials during the time the facility was built and the City wants to ensure adequate air monitoring is performed based on the characterization data.	A characterization plan is currently being prepared and that plan will outline methods to assess embedded contamination. It is anticipated that embedded contamination will be addressed during in-process characterization and detailed in the final characterization report. The instruments that have been used and will continue to be used are gamma radiation detection instruments If there is embedded contamination, it will be detected by the instrumentation. In addition, the history of the building and samples taken to date indicate that the contamination comes from the surface inward, and the highest levels are on the surface Therefore, using conservative estimates of total contamination (surface plus embedded) based on the survey results and assuming all of the contamination is on the surface provides a more conservative result in the air model Beryllium controlled and regulated areas will be closed before demolition Containerized chemicals and liquid PCBs will be removed before demolition. RCRA permitted and interim status units will be closed in accordance with the 776/777 DOP before demolition. Asbestos will be removed and certified in accordance with State regulations before demolition.
3	Data quality objectives are not clearly defined within the document to determine the goals for in-process characterization and final characterization. Please incorporate the data quality objectives into the DOP Without clearly defined revised objectives, it will be difficult for DOE and an independent third party to verify and/or validate if the characterization has been adequately performed.	Data quality objectives for characterization do not belong in the RFCA decision document for decommissioning The DQOs will be addressed in the project-specific characterization plan, and the basis for these DQOs will be the quantitative commitment of less than 1/100th of the regulatory limit at the fence line As indicated in Section 1 3 of Appendix I, it is anticipated that the public will be interested and involved in the project-specific characterization plan.

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4	*"The measurements that will be performed during final characterization will be total surface contamination"* Broomfield does not agree with the previous statement of utilizing total surface contamination to determine the final characterization of the building Clarify how internal and surface contamination will be factored into the air model to determine the extent of release of contaminants into the air and the risk to the worker and the collocated worker	A characterization plan is currently being prepared and that plan will outline methods to assess embedded contamination It is anticipated that embedded contamination will be addressed during in-process characterization and detailed in the final characterization report. The instruments that have been used and will continue to be used are gamma radiation detection instruments If there is embedded contamination, it will be detected by the instrumentation. In addition, the history of the building and samples taken to date indicate that the contamination comes from the surface inward, and the highest levels are on the surface Therefore, using conservative estimates of total contamination (surface plus embedded) based on the survey results and assuming all of the contamination is on the surface provides a more conservative result in the air model
5	Assessment of soil surrounding the project is not clearly defined within Appendix I of the Demolition Plan. The revision only addresses an assessment of the soils to ensure the project contribution to soil contamination is a low as reasonable achievable Identify the objectives to assess the impact to surrounding soils The document should identify the objectives and thresholds for the assessment of the soils along with the corrective actions if potential triggers in the soil are reached. ACM, beryllium, or any other potentially remaining contaminants in the facility or remaining sections of the facility should also be evaluated in the soils. If surrounding soils are contaminated, identify the corrective actions to remediate the contaminated soils or to ensure particulate matter is not re-suspended by wind to pose a risk to workers, collocated workers, or to the environment.	The soil surrounding the project will not specifically be addressed by this document, except with respect to the project's potential in impact the surrounding soils The final air dispersion model evaluation will be used to evaluate the Project's potential to impact the surrounding soils Some preliminary soil sampling will be conducted in accordance with the Industrial Area Sampling Analysis Plan to establish a baseline prior to initiating demolition. The objective of this sampling and air modeling is to ensure that the surrounding soils are minimally impacted by the demolition activities. Once the demolition is complete, ER will evaluate the Individual Hazardous Substance Sites and complete the necessary remediation in accordance with the ER RSOP Beryllium controlled and regulated areas will be closed before demolition. Containerized chemicals and liquid PCBs will be removed before demolition. RCRA permitted and interim status units will be closed in accordance with the 776/777 DOP before demolition Asbestos will be removed and certified in accordance with State regulations before demolition.

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6	Independent Verification and Validation (IVV) Section 4 7 of the B776/777 DOP states "An independent party, selected by DOE, will perform a verification assessment of the final survey methodology This assessment will include a review of survey procedures, survey instrument calibration and operation procedures, and the Pre-Demolition Survey Plan. Also, the independent party may obtain additional survey measurements for comparison with the RFETS measurements to ensure proper correlation of survey data." Broomfield understands the facility will not be free-released, but is convinced of the importance of having a third party independently review the final characterization of the building. The independent verification and validation should included assessment of the methodology and procedures of the characterization, review the of demolition survey plan to include both external and internal contamination, and additional survey measurements. The review can compare Rocky Flats Environmental Technology Site (RFETS) measurements and survey data for proper verification and validation of the building characterization. The IVV will ensure RFETS calculations are correct therefore ensuring input into the air quality modeling is sufficient to protect surrounding communities, air quality, and risk to workers and collocated workers	A minor modification of the original DOP was approved on June 10, 2003 The independent verification section was not modified with respect to conducting independent verification Independent verification will be conducted under a separate plan that will detail the process to be used Just as characterization details are not provided in the DOP, the independent verification details cannot be included in the DOP because it will depend on the characterization process used (which is being developed), and the final status of the facility
7	Broomfield has voiced its concerns pertaining to the need to have an IVV performed for B776/777 to ensure the accuracy of the decontamination and characterization of the facility. Revise the B776/777 DOP to include modified IVV objectives. The IVV should also include an independent review for all the constituents of concern, not just radionuclides. Broomfield committed to work with the Site during the development of the IVV for Type II or Type III buildings. We received a final IVV Plan from the Site and we were not provided the opportunity to comment on the plan We once again commit to work with the DOE to draft objectives for an IVV for B776/777	A minor modification of the original DOP was approved on June 10, 2003 The independent verification section was not modified with respect to conducting independent verification. Independent verification will be conducted under a separate plan that will detail the process to be used. Just as characterization details are not provided in the DOP, the independent verification details cannot be included in the DOP because it will depend on the characterization process used (which is being developed), and the final status of the facility

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8	Demolition Methodology Per Appendix I, there are three potential demolition scenarios The methodology identifies decontamination, removal, and a situation where decontamination/removal is not feasible, therefore encapsulants are applied and the area is delineated with paint prior to demolition. Broomfield is concerned with 3 0 of Appendix I, page 14 which identifies the general decision-making process to determine removal or use of fixatives and encapsulants for contaminated areas. The document states· *In balancing the worker safety, environmental and human health protection, and cost/schedule, it is currently conceived that removal.* • *The lower half of walls with low contamination will be encapsulated* Clarify when any contaminated area will be allowed to remain during the building demolition if it does not jeopardize the integrity of the facility We understand it is not feasible to decontaminate some areas within the facility due to the physical nature of the contaminated material, such as cinder block. We also understand it is not feasible to remove contaminated areas if they are integral sections of the building that maintain the integrity of the facility Broomfield does not support the above rational for allowing contaminated sections to remain if they can be decontaminated or removed prior to demolition. We do not oppose the rational to have a dirty demolition, but what we are asking is that contaminated areas be minimal during the demolition to prevent potential increased impacts to the environment, workers, and collocated workers	The decisions for each action (decontamination, encapsulation, and/or removal) are complex If the action (decontamination and/or removal) will not substantially reduce the overall source term to the immediate and collocated worker, public and environment, then the area will be fixed or encapsulated. It would be inappropriate to subject the workers to the risks associated with decontamination and removal, if there was no appreciable reduction in source term.

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9	Please clarify the following items. • Identify thresholds for "high", "medium", and "low" contamination, • Identify the regulatory guidance or DOE guidance that defines the terms high, medium, and low; • Justify why floors with any level of contamination can not be decontaminated or removed, • Justify why walls are evaluated differently from the upper half and the lower half; • Justify why walls, if they are not load bearing walls, or constructed of cinder block, can not be decontaminated or removed	This section of the DOP was written to give the reader a conceptual, simplified view of the preparation of the facility for demolition. There are no levels or definitions for high, medium, or low These levels cannot be defined because it is a process decision based on balancing risk to workers and the environment. The subjective nature of the section is predicated on meeting the quantitative commitment of less than 1/100th of the regulatory limit at the fenceline The decisions for each action (decontamination, encapsulation, and/or removal) are complex. If the action (decontamination and/or removal) will not substantially reduce the overall source term to the immediate and collocated worker, public and environment, then the area will be fixed or encapsulated. It would be inappropriate to subject the workers to the risks associated with decontamination and removal, if there is no appreciable reduction in source term. The decisions will be made by D&D management with radiological engineering and air quality input. The walls are divided into to upper and lower because decontamination of the upper portion of a wall has more hazards due to the elevated work than decontamination of the lower part of a wall
10	The contact record determining the decision to allow contaminated material to remain during demolition should be included in the close-out report along with the justification to not perform additional decontamination or removal. Broomfield does understand the need for a dirty demolition, but the contamination should be held to a minimal during demolition. Any contaminated material allowed to remain during the dirty demolition approach will contribute to additional contaminated waste piles being stored at the project, potential increased degradation of air and water quality, and increased risk to the general public and workers at the site	Contact records may be used throughout the preparation of the facility for demolition. However, it is anticipated that Final Characterization Report will contain the bulk of the information with respect to final status of the facility prior to demolition and the nature and extent of the remaining contamination. The decisions for each action (decontamination, encapsulation, and/or removal) are complex. If the action (decontamination and/or removal) will not substantially reduce the overall source term to the immediate and collocated worker, public and environment, then the area will be fixed or encapsulated. It would be inappropriate to subject the workers to the risks associated with decontamination and removal, if there is no appreciable reduction in source term. The decisions will be made by D&D management with radiological engineering and air quality input.

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11	Waste Pile Management • Section 5.2 1, of Appendix I states *Limitations on waste piles will be established to ensure that building rubble is containerized in a timely manner Fixatives or covers will be applied to waste piles when unattended and/or not in use to minimize dust (typically overnight)* Revise the document to include the criteria for selecting the location and management of the stockpile area for the contaminated waste. Revise the document to include the maximum volume to be stored in the stockpile along with the maximum storage time limit for waste storage. In addition, add language to state clean rubble should be transferred to the recycled concrete waste pile immediately so as not to commingle contaminated concrete and free-release concrete.	These demolition details will be included in the project-specific demolition plan prepared by the demolition contractor Direct-loading of waste into the containers will generally not be possible due to the size of the waste containers and requirements for size reduction, however, direct-loading will be conducted when possible. Preliminary decontamination and demolition planning is based on shipping the structure as low level waste, which requires 400 to 500 cubic feet waste containers that are approximately 6 feet high and 8 feet by 10 feet. In addition, there are limitations with respect to the size of the waste piles due to the availability of space, and the need for open areas for equipment movement. Including such detailed information in the DOP would limit the demolition subcontractor ability to plan the work and utilize the work area However, having the debris in waste piles that can be controlled through covering, fixatives, and surfactants is preferable to leaving the facility in an unstable configuration by stopping demolition activities to place the waste in containers. It is anticipated that none of the facility will be free-released. Waste pile criteria will be finalized and documented in work packages CDPHE will have the opportunity to participate in work package review per the consultative process outlined in RFCA and in Section 11 of the DOP A sentence was added to the DOP in Section 6 5 which says, "The planning of surface water controls will consider the area to ensure that the run-off is controlled adequately, and a process will be established to inspect the run-off controls during precipitation events during non-routine hours "

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12	As a minimum the criteria identified for the selection of the waste storage area and the management of the stockpile area should be included within the document. Revise the document to include the following items • Identify the drainage and how other means of discharge are controlled, • Identify that sufficient space is available for silt fences and berms to contain the waste piles, • Identify that the area needs to have a relatively level ground surface and an average slope less than 4 percent; • Identify that the area should be on an impervious pad, • Identify the storage area location in the B776/777 DOP and the inspection criteria for the waste storage area, both physical surveillance of the area and monitoring of accumulated liquids within the berms, • Identify the maximum amount of liquid allowed to be accumulated in the bermed area; • Identify the maximum volume to be stored in the waste/stockpile; • Identify the maximum time limit for waste to be stored in the waste/stockpile and how and when the time limit will begin for the debris, • Identify the maximum level of radionuclide activity to be stored outside in a waste/stockpile; • Identify the criteria for how soon surfactant will be applied to the stockpile, • Identify the required posting for the stockpiles; • Identify the Contingency Plan in the event of a major storm event and include holidays and weekends.	These demolition details will be included in the project-specific demolition plan prepared by the demolition contractor Direct-loading of waste into the containers will generally not be possible due to the size of the waste containers and requirements for size reduction, however, direct-loading will be conducted when possible Preliminary decontamination and demolition planning is based on shipping the structure as low level waste, which requires 400 to 500 cubic feet waste containers that are approximately 6 feet high and 8 feet by 10 feet. In addition, there are limitations with respect to the size of the waste piles due to the availability of space, and the need for open areas for equipment movement. Including such detailed information in the DOP would limit the demolition subcontractor ability to plan the work and utilize the work area. However, having the debris in waste piles that can be controlled through covering, fixatives, and surfactants is preferable to leaving the facility in an unstable configuration by stopping demolition activities to place the waste in containers. Waste pile criteria will be finalized and documented in work packages CDPHE will have the opportunity to participate in work package review per the consultative process outlined in RFCA and in Section 11 of the DOP. In accordance with the Site Stormwater Pollution Prevention Plan and National Pollutant Discharge Elimination System Permit, the run-off associated with the project will be controlled As indicated in Section 6 5 of Appendix I, "Enhanced controls may be implemented in the immediate work area where demolition is occurring to prevent release of dust control water " These controls will be established in conjunction with the surface water group during work planning, specifically completion of the environmental checklist.
13	Air Emissions Dust Control Plan Provide the data quality objectives for evaluating dust control during the demolition activities and storage of waste piles. Who will evaluate dust control activities and their effectiveness throughout the demolition activity? Will opacity criteria be utilized to evaluate the controls?	The use of opacity is being evaluated. However, due to the size of the project and the small amount of dust anticipated, it will most likely not be an effective method. The work area sampling will be used to evaluate the effectiveness of the dust controls. As indicated in Section 5.2 1 of Appendix I, "Dust control measures will be applied and evaluated for effectiveness throughout the demolition activity "

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14	Air Monitoring The City of Broomfield requests enhanced air monitoring be performed during demolition of B776/777 to ensure there are no elevated releases of contaminants to the environment. During the February 24, 2003 Rocky Flats Coalition of Local Governments (RFCLoG) meeting, Mark Fern committed to performing close-in monitoring to determine the impact to air quality The revised language does not include close-in air monitoring. Appendix I discusses the present system currently in place at the site. The language in the document discusses performance monitors around the Industrial Area perimeter and the ambient air monitoring at the site boundaries Clarify if close-in monitoring as Mark Fern committed to perform will be implemented during the dirty demolition. Add an Air Monitoring section to the document to include the close-in monitoring. The Colorado Department of Public Health and the Environment (CDPH&E) also committed to perform additional air monitoring for the B776/777 demolition project. Add language to include CDPH&E's air monitoring sampling and analysis plan along with the corresponding data quality objectives.	Worker protection is addressed by several on-site programs and federal regulations. These worker protection requirements are not optional and are included in the Kaiser-Hill contract with significant penalties for noncompliance. Once the building decontamination and characterization are complete, a final air dispersion model run will be used to develop the final work area boundaries and worker protection requirements. The work area boundaries for the immediate worker and collocated work area will be established. These boundaries will be developed based on the regulatory protection factors for determining airborne postings (currently, 0 3 DAC for the collocated worker) and personal protection requirements. If the air model suggests the 0 3 DAC boundary is at 50 meters, then radiological engineering will place the work boundary greater than 50 meters This level of conservatism will ensure that collocated workers will not exceed their administrative control level for site dose received These work boundaries will continue to be evaluated throughout the demolition and adjusted as required, based on the results of the worker health and safety monitoring (including work area and lapel samplers) Project area air sampling and personnel monitoring will be used to verify that the project protection factors/controls are effective for the work area and environment. Based on the results of the work area and worker monitoring and the ambient conditions, the project controls may be increased or decreased, as necessary throughout the demolition project. State air monitoring has never been included in a DOP and is usually included in the annual revisions to the IMP The following will be added to the IMP during the next revision cycle, "CDPHE or EPA will perform air monitoring during the B776/777 demolition. The type of monitoring will be planned and included in the IMP when the B776/777 demolition plan is complete and the Site monitoring is finalized."
15	Asbestos monitoring should also be included in the Air Monitoring section. Identify the sampling and monitoring plan for areas that contain ACM, which are in load-bearing walls or columns or joints and can not be removed prior to demolition.	As indicated in Sections 1.2 and 3 0 of Appendix I, asbestos will be abated prior to initiating demolition

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16	Beryllium monitoring should also be addressed within the Air Monitoring section of the B776/777 DOP Per previous discussions with DOE and CDPH&E, demolition activities associated with other buildings containing beryllium contamination such as B865 and B883 will monitor the beryllium impacts to air quality. An evaluation of the impact to air quality from the two beryllium buildings will determine the need to monitor for beryllium during the B776/777 demolition. Please add language to the revised document to include the evaluation process and the data quality objectives to determine if sampling and monitoring for beryllium will be included in the sampling and analysis plan for B776/777.	As indicated in Sections 1.2 and 3 0 of Appendix I, beryllium areas will be closed prior to initiating demolition.
17	If the sampling and analysis activities and objectives are not included in the revision to the B776/777 DOP, Broomfield requests the Integrated Monitoring Plan be revised as soon as possible to reflect the requirements of additional project-specific air monitoring during the demolition activities. Broomfield would like to participate in the development of the Sampling and Analysis Plan (SAP), just as we have in the past for other building demolitions. We encourage the Site to meet with local governments and the regulators to finalize a B776/777 SAP	This recommendation will be forwarded to the group responsible for the maintenance of the Integrated Monitoring Plan

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18	Radiological Protection and Control Please revise section 5 2 2, Radiological Protection and Control, to include language consistent with other site documents pertaining to the same protection of collocated workers. Broomfield appreciates the revisions made to clarify the controls to protect the worker and the collocated worker, but would like to see the following language included in the radiological protection and control section.	Worker protection is addressed by several on-site programs and federal regulations These worker protection requirements are not optional and are included in the Kaiser-Hill contract with significant penalties for noncompliance. Once the building decontamination and characterization are complete, a final air dispersion model run will be used to develop the final work area boundaries and worker protection requirements. The work area boundaries for the immediate worker and collocated work area will be established These boundaries will be developed based on the regulatory protection factors for determining airborne postings (currently, 0 3 DAC for the collocated worker) and personal protection requirements. If the air model suggests the 0 3 DAC boundary is at 50 meters, then radiological engineering will place the work boundary greater than 50 meters. This level of conservatism will ensure that collocated workers will not exceed their administrative control level for site dose received. These work boundaries will continue to be evaluated throughout the demolition and adjusted as required, based on the results of the worker health and safety monitoring (including work area and lapel samplers) Additional language was added to Appendix I in Section 4 1 to outline this process prior to the formal comment period.

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19	To protect collocated workers in the Contaminant Reduction Zone/Radiological Buffer Zone (CRZ/RBZ) and project support zone, project perimeter, or work area, high- and low- volume air samples will be collected. A portable alpha analyzer will be used to determine whether an elevated sample result is due to naturally occurring radioactive material or radioactive COCs. If real-time results are required, a continuous air monitor will be used If a confirmed sample result is greater than 30 percent of the derived air concentration (DAC), the following actions will be taken. • All activities will be immediately suspended, and the Project Manager or Field Supervisor, Project H&S Officer, Project Environmental Manager, and Radiological Safety will be notified. • Access to downwind areas will be restricted. • All personnel in the CRZ/RBZ and support zone will be moved to a safe upwind assembly area. • Based on sample and monitoring results, potential personal radiological exposure will be reviewed. • Based on the sample results, the area radiological postings, RWP, controls, and work practices will be reviewed and modified as necessary. Upon approval from the K-H Project Manager and the lead regulator (CDPH&E) or their designee, work activities will resume	There is currently no instrumentation able to conduct real time air monitoring outdoors to accurately measure airborne concentrations required for protection of collocated workers Worker protection is addressed by several on-site programs and federal regulations. These worker protection requirements are not optional and are included in the Kaiser-Hill contract with significant penalties for noncompliance

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20	Incidental Spill Response and Equipment Decontamination Add a section to the DOP to include actions to be taken in the event demolition equipment is contaminated. Clarify how often equipment will be surveyed, threshold limits for equipment, and where the equipment will be decontaminated. If contamination levels are greater than unrestricted release limits, the following actions should be taken. • All activities will be immediately suspended, and the Project Manager, Field Supervisor, Project H&S Officer, Project Environmental Manager, and Radiological Safety will be notified; • The source of the contamination will be identified and controlled, • The contaminated material or equipment will be contained, handled, and transferred in accordance with the RFETS Radiological Control Manual, • Based on the survey results, the area radiological postings, RWP, controls, and work practices will be reviewed and modified as necessary, Upon approval from the K-H Project Manager and the lead regulator (CDPH&E) or their designee, work activities will resume	Demolition equipment will be surveyed in accordance with site procedures, Unrestricted Release of Property Material, Equipment, and Waste, PRO-141-RSP-09 01 It is not anticipated that work activities will cease if contamination gets on the equipment, it will depend on the amount and location of the contamination

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21	Add a section to the document to include incidental spill response The potential for spills or leaks from heavy equipment should be addressed within the revised document. The potential types of spills should be identified along with the criteria that must be met prior to release response actions and post-incidental spill response.	B776/777 Project manages all spills in accordance with the Chemical Management Manual, 1-MAN-019-CMM-001, which requires spill notification within 24 hours and cleanup (See Chapter 10 3 2) This is an ARAR and response and notification are required actions
22	Water Management Broomfield continues to be concerned with the work planning and execution of protecting surface water from contaminated groundwater or erosion from contaminated soils in the area. The B776/777 DOP states Environmental Restoration (ER) will begin remediation of soils, groundwater, and surface water contaminated as a result of building operations. The document does not address the potential to encounter contaminated groundwater in this area, nor does it identify the contaminants of concern. The B776/777 DOP is not specific enough to address the potential degradation of surface water. The "Surface Water Management Practices" section is generic to the site and not explicit to the B776/777 project. If the specific constituents of concern and groundwater plumes are known, they should be addressed in the plan. In addition, the plan does not address how run-on and run-off will be controlled during the storage of contaminated stock piles for an undefined amount of time Revise the document to identify the criteria for controlling run-on and run-off during the project.	Section 6.6 in Appendix I indicates, "The levels of contamination in groundwater surrounding and beneath the footprint of the Building 776/777 Closure Project vary significantly among the sample points. The principal region of higher levels of groundwater contamination in this area is known as the "Industrial Area (IA) Plume "[1] The IA Plume is believed to result from contamination migrating from multiple Individual Hazardous Substance Sites (IHSSs) Its principal constituents are three volatile organic compounds (VOCs) trichloroethene, tetrachloroethene, and carbon tetrachloride IHSS 118 1, located immediately north of the building, is the likely source of carbon tetrachloride contamination that exceeds RFCA Tier I Action Levels in groundwater at the northwest portion of the building Sources of the IA plume are not well known, and the effort to determine the sources is underway[2] In the event groundwater is encountered during facility demolition, it will be removed, as necessary to characterize and remediate the interior surfaces of the building, specifically the basement, sumps and buried equipment pits Samples will be collected as necessary to determine the disposition pathway for the pumped groundwater If the water is contaminated, but there is no threat to surface water protection standards, the groundwater may be left in the subsurface structure with controls sufficient to protect the health and safety of workers and the public until remediation during ER. If the water is contaminated and is a threat to surface water protection standards, the water will be pumped to a treatment facility until remediated during ER. Project-specific controls will be detailed in the Contractor Demolition Plan and work package(s) for the demolition activity "

1 Integrated Monitoring Plan Background Document, FY 2000, September 1999, and the 1999 Annual RFCA Groundwater Monitoring Report, Figure 8-1, Monitoring Well Locations, East Industrial Area VOC Plume.

2 Sampling and Analysis Plan for Groundwater Monitoring of Industrial Area Plume, Rev 1, 01-RF-00907, PADC-2001-00576

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Cmt. #	**Comment**	**Response**
23	Surface water and groundwater information such as depth to groundwater, contaminants of concerns, and plume migration should be added to the surface water and groundwater sections. A map should be included to identify the location of the B776/777 D&D groundwater wells or any additional surface water points of evaluation	Surface water and groundwater monitoring will be conducted in accordance with the Integrated Monitoring Plan, which the communities are involved in on a quarterly basis As indicated in Appendix I, Section 6 5, "Surface water monitoring will be conducted in accordance with the Site IMP Additional performance monitoring stations will be installed, as necessary, based on activity-specific assessments performed by Site water quality Subject Matter Experts." Section 6.6 indicates "The Sampling and Analysis Plan (SAP) for the D&D Groundwater Monitoring of Buildings 707, 776/6777, 371/374, 865, and 883[3] describes the well installation, well development, and initial groundwater sampling activities planned for the Building 776/777 Closure Project during decommissioning." Appendix I has addressed the appropriate information through reference.
24	Add an appendix to the B776/777 DOP to include surface water management practices. The information can be used to develop activity-specific surface water management controls for the Building 776/777 demolition project. Broomfield believes the potential surface water management controls should be identified in the document due to the high potential for release of incidental water from the stored contaminated debris waste piles. Criteria for interceptor swales, diversion dikes or berms, and use of silt fences or straw bale dikes should be identified. The primary use, applications, design criteria, limitation and maintenance requirement of the different controls should be identified. Corrective actions for erosion or sediment build-up should also be included in the newly added appendix.	As indicated in Section 6 5, "During facility demolition, surface water run on/run off will be controlled using standard construction methods, including silt fences, hay bales, and diversion ditches per the Site Storm Water Pollution Prevention Plan " The criteria for these features is contained within that plan and incorporated into Appendix I through reference
25	Applicable Or Relevant And Appropriate Requirements (ARARS) Revise the ARARs to reflect the CDPHE regulations that were adopted after 1999 Include an appendix to include the appropriate ARARs and identify the regulations and citations pertaining to the B776/777 project.	The original DOP was revised to add the CDPHE radiological regulations, this revision was completed through a minor modification, approved June 10, 2003 A draft of the minor modification was distributed to the stakeholders on May 20, 2003 at the ER/D&D meeting

3 Sampling and Analysis Plan (SAP) for the D&D Groundwater Monitoring of Buildings 707, 776/777, 371/374, 865, and 883 (latest revision)

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26	Ecological Impacts Broomfield appreciates the revision, section 6.4, Migratory Bird Clearance to address removal of nests. Revise the document to include language stating that a NEPA checklist will be completed prior to demolition of the facility, which will evaluate the impact to migratory birds and to the preble's meadow jumping mouse. Also identify the criteria for short term re-vegetation to prevent erosion in the B776/777 area until Environmental Restoration remediates the surrounding area.	A NEPA checklist is being prepared, which will ensure that these issues are addressed
27	Project Mobilization, Site Preparation, and Demobilization Broomfield would like to commend Kaiser-Hill on the specific methodologies and plans for mobilization, site preparation, and demobilization that were included in 371 DOP. To provide consistency with other DOPs, revise the B776/777 DOP to incorporated mobilization, site preparation, demolition, removal of the structure and tanks, and demobilization. Include a map to identify the location of the areas, specifically the stockpiles	The same information contained in the 371 DOP has been incorporated in Appendix I, however, the information has been streamlined to facilitate readability and eliminate redundancies Section 5 1, sixth paragraph contains the traffic pattern information similar to the other DOPs. Section 5 1, third paragraph contains the site mobilization and preparation information similar to the other DOPs
28	Long-term Environmental Stewardship The Building 730 underground plenum deluge tanks will be emptied of liquids and sludges and the contamination will be fixed per the plan. The tanks contain solvents, therefore the system should be classified as a RCRA unit. Clarify if the tanks are considered RCRA regulated tanks and identify the closure process for the deluge tanks Also identify the contamination levels of the tanks and comparison to RFCA standards or action levels.	The original DOP was revised to indicate that Building 730 would be transferred to ER for disposition once the mechanical and electrical systems are removed, the sludges and liquids removed, and the contamination fixed. This revision was completed through a minor modification, approved June 10, 2003 A draft of the minor modification was distributed to the stakeholders on May 20, 2003 at the ER/D&D meeting. These tanks are not RCRA and two of the tanks were dispositioned under a previous action

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29	Footing drains and sumps are not addressed in section 7 9, Transition to Environmental Restoration Broomfield is concerned the project is located in the vicinity of the Industrial Area Plume and the Carbon Tetrachloride Plume and the stewardship implications have not been evaluated. This document does not address the environmental long-term stewardship implications if the footing drains, sumps, tanks, or foundation slabs are left in place. Broomfield has always voiced a concern about performing an adequate short-term and long-term stewardship evaluation to determine impacts to water quality if structural material or tanks remain in place. Without a final water balance report or final land configuration plan, we do not understand how an adequate long-term stewardship evaluation can be made regarding the footing drains, sumps, tanks, or slabs. We recommend an environmental section be included in the document to discuss the stewardship implications of the project, the stewardship evaluations, and the rational for the evaluations	The following was added to Section 7 0, "Footing drains will be dispositioned based on input and guidance from the Environmental Restoration (ER) team, taking into account the post-closure water balance and movement of groundwater and contaminants. If the decision is made to obstruct flow through the footing drains, several areas of the drain will be excavated and backfilled."
30	The document states *"Before making the decision to leave any unrestricted-release slabs in place, Building 776/777 project management will coordinate with ER on their soil sampling and remediation plans ER will characterize and remediate as necessary the soils under the building and associated following the established RFCA soil action levels.* Broomfield does not approve of allowing contaminated slabs that are not within deep basements to remain in place. The wording in Appendix I implies unrestricted slabs will remain in place. Clarify the statement pertaining to the actions taken for slabs both within three feet of grade or below three feet of grade. Broomfield requests the stewardship evaluation criteria and data be included in the revised B776/777 DOP to identify the stewardship evaluation of the project. With residual contamination and additional risk associated with this project, the document does not incorporate the inherent long-term stewardship uncertainties associated with its demolition approach.	This sentence was trying to convey that if there is going to be a time gap between decommissioning and ER activities, the projects will coordinate Decommissioning does not want to remove a slab before ER is ready to perform the necessary characterization and remediation. This language is identical to the language in the Facility Disposition RSOP and other decommissioning decision documents The sentence was removed from Appendix I. No slabs will remain in place for the B776/777 project. The basement or portions of the basement and/or footings that meet the unrestricted release criteria and are 3 feet below the final proposed grade may remain in place

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31	Public Involvement Broomfield appreciates the effort the Site has taken to keep us informed of the 903 Pad activities through the daily activity reports We would like to request once the project commences, the daily reports for the B776/777 demolition project be forwarded to us, so that we can keep abreast of the activities. B776/777 demolition poses a unique situation in which we all want to ensure protection of the environment, the workers, and the collocated workers. We appreciate the Site's commitment to work with us and keep the doors of communication open so that we can all work towards the same goal of a safe clean-up and closure at Rocky Flats.	The Site is committed to keeping the public stakeholders aware and up-to-date on the projects, however, it is unknown if daily reports will be developed during demolition The community advisory program, the RFCLoG and RFCAB meetings and the ER/DD status meetings will continue to be opportunities to share and exchange information

RFCAB, Victor Holm, June 5, 2003		
Cmt. #	**Comment**	**Response**
1	Decontamination of Highly Contaminated Interior Walls During the informal comment period, the RFCAB Closure Projects Committee raised the issue of demolishing a highly contaminated interior wall inside localized containment. The purpose would be to demonstrate the effect of such activity on air quality and potential worker exposures. Therefore, we were encouraged to learn on May 1 that the B771 project has already performed this kind of test on an interior wall in that building and that the B776/777 project will be evaluating the results for work planning purposes. RFCAB would like to be informed of how these results will be applied to planning for the demolition of B776 Depending on the outcome of the B771 demonstration, RFCAB believes there may be value in conducting tests of contaminated, non-load-bearing walls inside B776 as well and that this data should be used to evaluate the path forward on highly contaminated load bearing walls.	The 771 Project has recently completed the removal of an interior wall, and the 776 Project is in the process of evaluating demolition of a contaminated interior wall This information will be used for work planning purposes, but may have limited applicability to the air model Lessons learned are always incorporated at RFETS, it is a requirement of the Integrated Safety Management Program It is anticipated that the B771 information as well as information from the B371 and B707 projects and activities within B776 will be used to plan the decommissioning activities B865 has recently performed a small scale demonstration of slab removal using no dust control The contaminants (uranium and beryllium) were fixed. Although the contaminants are not the same, the information is being evaluated by the B776 project and incorporated into the planning efforts
2	Selective Removal under Localized Containment RFCAB understands that the demolition plan mentions removal of high contamination found in ceilings and walls, but RFCAB believes the demolition plan should more clearly state this as a project goal. In principle, RFCAB supports selective removal of high contamination embedded in non-load-bearing walls, both interior and exterior as well as ceiling and roof, prior to demolition, if it can be done safely The site should also consider doing such work under localized containment, as in the B771 test in number 1 above, if feasible	The selective removal of highly contaminated portions of floors, walls, and ceiling is an integral part of Alternative 4 and removal will be considered during the preparation of the facility. It is unclear how this point can be made more completely Appendix I contains 13 references to the removal with respect to Alternative 4 The decisions for each action (decontamination, encapsulation, and/or removal) are complex. If the action (decontamination and/or removal) will not substantially reduce the overall source term to the immediate and collocated worker, public and environment, then the area will be fixed or encapsulated. It would be inappropriate to subject the workers to the risks associated with decontamination and removal, if there is no appreciable reduction in source term. The decisions will be made by D&D management with radiological engineering and air quality input.

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3	Close-in Air Monitoring RFCAB feels the demolition plan should clarify the site's commitment to do close-in real time air monitoring as well as more sensitive monitoring within and surrounding the B776 project boundary. This would include, but not necessarily be limited to, air sampling performed using work area air samplers, lapel air samplers and portable alpha analyzers. Site managers have stated that worker health and safety monitoring will also provide immediate feedback to the project on whether releases to the environment are being kept as low as reasonably achievable. Therefore, RFCAB believes it is appropriate to include this type of monitoring in a CERCLA decision document.	There is currently no instrumentation able to conduct real time air monitoring outdoors to accurately measure airborne concentrations required for protection of collocated workers. Worker protection is addressed by several on-site programs and federal regulations. These worker protection requirements are not optional and are included in the Kaiser-Hill contract with significant penalties for noncompliance Section 4 1 of Appendix I contains the following, "Based on these results, work area boundaries and personnel protection equipment will be established in the health and safety plan, radiological work permits (RWPs), and job hazard analysis Project area air sampling and personnel monitoring will be used to verify these protection factors/controls are effective Based on the results of this monitoring and the ambient conditions, the controls may be increased or decreased, as necessary throughout the demolition project." This language outlines the process that will be used during worker monitoring The requirements for worker monitoring are documented in the site Radiation Protection Program, which is referenced in Appendix I

RFCAB, Victor Holm, June 5, 2003		
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4	Protection of Collocated Workers The demolition plan states an objective of limiting project emissions such that a member of the general public receives no more than 1% of the 10 mrem dose allowable for radionuclides under the National Emission Standards for Hazardous Air Pollutants. The plan should also describe • The emissions objective for protecting collocated workers • The specific measures that will be taken in order to meet this objective, to include a radiological buffer zone established in downwind areas to minimize worker exposures • An early warning system for protecting collocated workers • How the Site plans to achieve ALARA	Worker protection is addressed by several on-site programs and federal regulations These worker protection requirements are not optional and are included in the Kaiser-Hill contract with significant penalties for noncompliance Once the building decontamination and characterization are complete, a final air dispersion model run will be used to develop the final work area boundaries and worker protection requirements. The work area boundaries for the immediate worker and collocated work area will be established. These boundaries will be developed based on the regulatory protection factors for determining airborne postings (currently, 0 3 DAC for the collocated worker) and personal protection requirements If the air model suggests the 0 3 DAC boundary is at 50 meters, then radiological engineering will place the work boundary greater than 50 meters This level of conservatism will ensure that collocated workers will not exceed their administrative control level for site dose received. These work boundaries will continue to be evaluated throughout the demolition and adjusted as required, based on the results of the worker health and safety monitoring (including work area and lapel samplers) Additional language was added to Appendix I in Section 4 1 to outline this process prior to the formal comment period.
5	Wind Speed Criteria The wind speed criteria in the demolition plan appears to be no different from that used to govern work activities elsewhere on site. Since this project is a special case, the demolition plan should give consideration to using lesser wind speeds as work stoppage criteria for B776 It should be demonstrated that the emissions controls being employed on the project are protective up to the wind speed criteria ultimately chosen.	These are the standard site restrictions, which are based on industrial safety requirements If the dust cannot be controlled, project operations will cease, regardless of the wind speed. As indicated in Section 5 2 1, "Dust control measures will be applied and evaluated for effectiveness throughout the demolition activity." Dust control (including wind speed) will be finalized and documented in work packages. CDPHE will have the opportunity to participate in work package review per the consultative process outlined in RFCA and in Section 11 of the DOP

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6	Explosives At the May 1 RFCAB meeting, project managers stated that they may seek approval from CDPHE for limited use of explosives in B776 for such purposes as concrete footings and thick walls that have been decontaminated to meet unrestricted release criteria, etc If this is the plan, the public should have a chance to comment on it. RFCAB recommends that the plan add clarifying language stating what the explosives would be used for The commitment should also be made that no explosives will be used for overhead pipes in this building. Where explosives are being contemplated as a means to soften thick concrete walls, the site should explore alternative approaches such as Cardox, a compressed gas that may be useful for this purpose.	There is a potential to use explosives in the vaults and the footings under the building, however, this is just a possibility that is so conceptual it has not been included in Appendix I The use of explosives will be predicated on the ability to decontaminate the vaults to unrestricted release and dependent on the potential soil contamination In both instances, the explosives would be used to "soften" the structures – not destroy the structures – similar to the use of explosives in Building 886 There is no intention to use explosives for overhead pipe removal in Building 776 As indicated above, explosives would only be used in areas that met unrestricted release If explosives are pursued for any activities in B776 the DOP would have to be modified The B776 DOP does not currently address the use of explosives or reference either of the RFCA Standard Operating Protocols, which cover the use of explosives
7	Waste Pile Management The plan states that "limitations on waste piles will be established to ensure that building rubble is containerized in a timely manner." These limitations should be more clearly described in the document, including the maximum number of piles, the maximum volume and specific time limits The plan should state that the site will use direct-loading of waste into containers to the extent feasible. It must be assured that the waste piles will not exceed a size that can be controlled via the dust control methods being proposed and demonstrated in number 5 above It must also be assured that the waste piles will not exceed a volume whereby precipitation overland flow can be controlled using secondary containment.	These demolition details will be included in the project-specific demolition plan prepared by the demolition contractor Direct-loading of waste into the containers will generally not be possible due to the size of the waste containers and requirements for size reduction, however, direct-loading will be conducted when possible Preliminary decontamination and demolition planning is based on shipping the structure as low level waste, which requires 400 to 500 cubic feet waste containers that are approximately 6 feet high and 8 feet by 10 feet. In addition, there are limitations with respect to the size of the waste piles due to the availability of space, and the need for open areas for equipment movement. Including such detailed information in the DOP would limit the demolition subcontractor ability to plan the work and utilize the work area. However, having the debris in waste piles that can be controlled through covering, fixatives, and surfactants is preferable to leaving the facility in an unstable configuration by stopping demolition activities to place the waste in containers Waste pile criteria will be finalized and documented in work packages. CDPHE will have the opportunity to participate in work package review per the consultative process outlined in RFCA and in Section 11 of the DOP

RFCAB, Victor Holm, June 5, 2003		
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8	Shutdown Authority The plan should clarify who has project shutdown authority (both entities and personnel) and the criteria by which it would be exercised.	Stop work authority is addressed by an internal site procedure Stop Work Action, 1-V10-ADM-15 02 This procedure provides instructions for implementing a Stop Work action when unsafe or unacceptable work conditions are identified. As indicated in the procedure, "This procedure applies to all work at Rocky Flats Environmental Technology Site (Site) It is to be used where there is **unsafe or unacceptable work, imminent danger to workers** " Worker protection is addressed by several on-site programs and federal regulations. Worker health and safety requirements are not optional and are included in the Kaiser-Hill contract with significant penalties for noncompliance. However, a reference to this procedure has been added to Appendix I in Section 5.2 3, which says, "Stop work will be implemented in accordance with the Stop Work Action procedure, 1-V10-ADM-15.02, all employees at RFETS are responsible for stopping work when unsafe conditions are identified."
9	Characterization • There must be independent review (IVV) of the final building characterization. • Although the characterization strategy has yet to be finalized, the demolition plan should at a minimum commit to additional core sampling and investigations of other inaccessible areas Such sampling needs to include other contaminants besides radionuclides, such as beryllium. All of the above would reduce both uncertainties and public concern associated with unidentified contamination in the building.	A minor modification of the original DOP was approved on June 10, 2003 The independent verification section was not modified with respect to conducting independent verification. Independent verification will be conducted under a separate plan that will detail the process to be used Just as characterization details are not provided in the DOP, the independent verification details cannot be included in the DOP because it will depend on the characterization process used (which is being developed), and the final status of the facility A characterization plan is currently being prepared and that plan will outline methods to assess embedded contamination. It is anticipated that embedded contamination will be addressed during in-process characterization and detailed in the final characterization report. The instruments that have been used and will continue to be used are gamma instruments If there is embedded contamination, it will be detected by the instrumentation. In addition, the history of the building and samples taken to date indicate that the contamination comes from the surface inward, and the highest levels are on the surface Therefore, using conservative estimates of total contamination (surface plus embedded) based on the survey results and assuming all of the contamination is on the surface provides a more conservative result in the air model